

IMMERSION, STYLIZATION, NATURALIZATION, AND THE ERASMATRON:
BRIDGING THE GAP BETWEEN GAMEPLAY AND NARRATIVE TOWARDS THE
PROMISE OF INTERACTIVE STORYTELLING

By

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by

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This thesis is dedicated to Leonard Sansone and Needham Vernon Smith for their inspiration.

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Abstract of Thesis Presented to the Graduate School
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There has been a longstanding divide in videogames between a player's desire to interact with the gamespace and developers' intent to deliver an entertaining narrative experience to their audience. Some games, however, have attempted to address this issue in their unique and innovative methods of delivering their narrative, such as Jordan Mechner's interactive narrative, *The Last Express*. A recent development from videogame designer Chris Crawford, the Erasmatron, hopes to further push the boundaries of interactive storytelling by delivering to players an engine capable of delivering and sustaining an open-ended dramatic structure. However, since videogames have yet to start incorporating this rather promising technology, as developers still focus blindly on integrating the newest in hardware, no videogame has, as of yet, achieved a truly interactive storytelling process—using the Erasmatron, or any other engine. Games that have, however, attempted to bridge this divide between the demands of action and

narrative are examined in light of their accomplishments, as their developers display that some are, indeed, at least considering new and innovative ways in which to deliver videogame narratives. Additionally, possible ruptures in the cohesive presentation of the gamespace are also scrutinized as considerations developers should consider as they actively work towards this Holy Grail of gaming: a transparent, interactive, and dynamic storytelling process.

CHAPTER 1
IMMERSION, STYLIZATION, NATURALIZATION, AND THE ERASMATRON:
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Ludology, or the study of games, is a field that is only recently beginning to catch the attention of the gaming press and the larger academy. No longer simply the playstuff of children and disaffected teenagers, home computer and console video game sales are surpassing Hollywood and television's iron curtain on our consciousness as games continue to break out from isolated bedrooms and desktops and are adapted onto the silver screen, comics, and novels. Even traditional arcades are going the way of the dodo bird, as PC and console LAN gaming arcades have begun to replace the few quarter-munching arcades that remain. No longer are games the button-mashing, story-lite fare of the mid-1980s arcade machines, but games have since been capable of delivering moving, endearing narratives in a variety of ways, across a variety of genres. Newer titles like Valve Software's *Half-Life* (1998), Rockstar Games' *Grand Theft Auto 3* (2001), and Irrational Games' *System Shock 2* (1999), have all done their part to radically progress what the concepts of gaming can entail for the player: whether it be the utter horror provoked by the bio-xenomorph annelid hybrids in *System Shock 2*, or the sheer pleasure of speeding through the postmodern noir backdrop of Liberty City—accomplishing absolutely nothing all the while—in *Grand Theft Auto 3*.

Yet there exists a singular debate among the bulk of writers displaying interest in the medium of the videogame of an essential divide between the developer's wish to tell a story (narrative) and for the gamer to explore and interact with the virtual environment

([inter]action/gameplay). This seemingly insurmountable chasm has plagued the gaming industry since its inception, and never more than since the mainstream demise of text-based Interactive Fiction (IF). Though the text-based fiction pieces still enjoy a cult-like following and garner serious attention from academics, older gamers, and abandonware enthusiasts, among mainstream videogames this divide has stifled any true advancement in this next evolutionary step for videogame storytelling as developers focus more and more on graphical improvement rather than improving the ways in which the player is immersed in the narrative process.¹ It is understood that the graphics and audio processing will improve as technology improves—but what about the storytelling process itself? And how can it be merged with the gamer's inherent desire to play, wreaking havoc with the developer's well-written, exquisitely planned story?

Sean Fenty's Master's thesis poses the question of whether or not the modern gaming medium can even be considered a vehicle for interactive stories. He finally reaches the conclusion that they are capable of doing so, citing Jordan Mechner's *The Last Express* (1997) as his casepoint example. His Master's thesis provides a valuable framework for questions that will be posed by this essay when it asks the question: since some games *can* be considered interactive narratives, what are games currently doing within the more recent technical confines of the medium to bridge this long-standing divide between (inter)action/gameplay and narrative? This divide, and the innumerable conventions that it has created, still haunts gaming ten years later after *The Last Express*'

¹Zach Whalen describes immersion in his unpublished master's thesis as, “giving in to the seduction of the text's story, to be blissfully unaware of one's surroundings and the passing of time as one escapes into the pleasure of reading” (12). In becoming immersed in the narrative, the player is “in the moment” and must rely on learned scripts, or schemas, to more easily facilitate the cognitive processing of the incoming visual/auditory/sensual data being relayed from the body (Whalen 13). Schemas include learning how to maneuver through the gamespace, maintaining an aim on enemies, processing visual cues in the periphery of the screen, etc.

release—conventions even *The Last Express* and its acute understanding of the narrative process was unable to completely overcome, despite radically expanding the boundaries of what types of narrative could actually be considered a “videogame.”²

The focus of this paper will be largely centered on the personal computer as the primary gaming platform. Not many games to this point have been able to rise above the action/narrative dichotomy, and those that do are only able to do it partially—though certainly there will be continuing developments towards this in the future.

This divide has plagued videogames since they have moved beyond their traditional emphasis on action and gameplay in their early days, evident by the flimsy, shoestring premises that held such early games as *Super Mario Brothers*, *Pac-Man*, *Metroid*, or *Gladius* together, which was then usually followed up with the player shooting enemies, jumping platforms, or gobbling power-ups for the rest of the game—with a screen or splash panel generally acknowledging the player's having achieved the endgame state.³

Mark Wolf emphasizes this divide when he states:

At first glance it would seem that interactivity and the inclusion of a pre-determined story would work against each other.... How can a story proceed in orderly fashion from one point to the next and finally reach a conclusion if the

²One technique is letterboxing the in-game or CGI/FMV cut-scenes as an indicator to the player that they cannot currently engage the narrative, one of the most widely used approaches as it recalls the filmic convention of a passive reception of the narrative. Before *Half-Life's* introduction of immersive, in-game narrative delivery, these conventions also helped in aiding the player break frame with the gamespace to watch the more-detailed, often pre-rendered or filmed video sequences (Crawford, *Game Design* 160). Before the introduction of film sequences, often “splash screens,” or detailed static images, were used, as in *Revolution's Beneath a Steel Sky*, which used a comic book stylization in its splash screen art (Crawford, *Game Design* 159).

³The Nintendo port of the arcade game *Rampage* featured a particularly frustrating ending: after having to fight through dozens of cities over the course of several hours, the player is given a screen with the word “CONGRATULATIONS” printed across the middle of the screen. The game itself has an interesting premise involving very real fears of genetic manipulation, radioactive waste, and lab experimentation. It's a story of people's lives being thrown violently outside of the norm, yet nothing is ever mentioned as to George, Lizzie, or Ralph's futures after the game's story concludes.

reader/player is allowed to step in and make the decisions, acting as the main character? (Wolf 107)

As is evident by Wolf's quote, this is a question that has long plagued developers, so it seems most just don't acknowledge the issue—or are even aware the debate exists. Early developers were fortunate, in that the significantly smaller size of early storage media prevented any real large narrative component to be included with the story outside of IF titles—instead, developers focused on making gameplay a unique and interesting experience. However, the introduction of larger amounts of data storage allowed developers to integrate a narrative component into videogames, leaving developers to think of ways to suspend player agency temporarily to deliver these narratives, which eventually gave rise to the use of devices such as pop-up text boxes, cut-scenes, splash panels, full-motion video (FMV), and computer-generated imagery (CGI). These devices are still prevalent today, though certain games are beginning to rise above the need for them, as a small number of developers continue to build towards a truly interactive narrative process byte-by-byte—and through lots of trial and error.

Of the recent graphics-based adventure or action games, there has yet to be a single game that has actually achieved a truly interactive storytelling process. However, a small crop of innovative videogames are certainly evidence that a small number of developers are actively considering unique and innovative ways to craft and deliver a game's narrative—a small sample of these games will be the ultimate focus of this paper. But before the games are discussed in depth, a few issues, definitions, and considerations must first be discussed as methods to possibly improve immersion within the game experience and to increase identification with player-characters, essential components for any narrative experience across any medium. These concepts will be defined at length, in

an analysis of the various ways in which games can increase player immersion through increasing the transparency of the game's interface as well as the use of stylization in order to facilitate the goal of a truly interactive narrative experience. There will then be a close reading of several games in which this narrative/action dichotomy has been overcome in minor ways, though none have actually achieved what developer Chris Crawford proposes with his Erasmatron engine. This patent-pending and promising development from interactive-storytelling-proponent and game developer Chris Crawford may serve as a signpost of where developers may want to look as a way of augmenting their game's storytelling process, rather than focusing blindly on graphical and processing issues. In an attempt to address these needs, Crawford's Erasmatron engine, combined with a number of promising developments from the titles that will be discussed, further promise to erase the distinction between these longtime polar opposites, and that have been present in videogames since they moved beyond the story-light, highly-interactive arcade fare of the early to mid-1980s.

Definitions Of Gameplay And Interactive Narrative

Computers have been programmed to (re)create many types of media within their small case, with specialized applications capable of recording sound, scanning and displaying text and graphics, and the streaming and playing of video. However, what distinguishes the computer from the books, films, television shows, radio programs, paintings, or the architecture it is able to render is its potential for interactivity, in that it responds to a user's input. When it comes to interactivity of this particular dimension, the computer easily outperforms any other medium available. "The video game narratives, however, involve the audience in a uniquely direct manner.... It is still, in the end, a vicarious experience [through the "surrogate" player-character], but a more interactive

one,” as Mark Wolf says in *The Medium of the Video Game* (93). The computer's plasticity makes it an excellent vehicle to deliver narratives across a variety of different media, with television, books, radio, photography, film, animation, painting, and comics all being consolidated into one convenient case. However, despite the computer's ability to digitally reproduce and deliver an entertaining narrative experience, when it comes to generating and telling their own, they tend to fail miserably—many attempts generate nothing more than entertaining non-sequiturs, as a conversation between the cyber-poet/program Racter and Espen Aarseth displayed in Aarseth's book, *Cybertext*. Aarseth discusses what he calls “cyborg literature,” and how it is “produced by a combination of human and mechanical activities,” ultimately listing three typologies under which human and machine interaction occurs: preprocessing, coprocessing, and postprocessing (135). He posits that “the computer will never become a good traditional author, if only because it cannot criticize or appreciate its own work,” which implies that computers will never be able to generate enjoyable narrative experiences, which Chris Crawford's *Erasmatron* hopes to prove him wrong (Aarseth 131). Despite this, Aarseth remains confident that computers *are* a suitable vehicle for *ergodic* literature, or literature in which a reader has to do work to explore and traverse the text, and he states that in order for any serious study of ergodic literature to take place that the poetics of literary discourse surrounding videogames must be disposed of and that developers should utilize “the computer's potential for combination and world simulation” to create universes that can be compared against themselves, a point that will be further addressed later in terms of stylization (1, 141).

Attempts at crafting computer programs capable of legitimate, “conversational” speech have produced interesting results, like Joseph Weizenbaum's Rogerian psychotherapist program ELIZA (Murray 68). Eliza responded to user input, altering what the user inputted and then repeating it back to them, like a Rogerian psychologist repeating what their patients say without judgment—a situation which then prompts and encourages the user, or psychiatric patient, for more input. If the program could not respond to a certain line of inquiry, it simply changes—the subject to some other probing question, centered usually on one's family or sex life (Murray 69). Eliza ultimately fails to mimic or produce true conversation, as the program itself has terrible language comprehension—something most IF text-based games can *barely* manage to accomplish today. This isn't to say that Eliza wasn't totally unbelievable as a conversationalist due to “Weizenbaum's adroitness in formulating rules of discourse that are based on the ways in which a therapist would behave,” something Janet Murray notes and Aarseth seems to ignore, focusing instead on non-sequiturs as proof that computers are unable to currently produce these types of spontaneous, generated, and sensical texts (Murray 72). Murray states, “Eliza's responsiveness is limited by her poor understanding of language, which makes her liable to nonsense utterances,” however, as another chatterbot “Parry” will display, maybe all Eliza needed was a little story of her own (Murray 74). Things haven't gotten much better since Eliza's creation; certainly, modern text-based IF parsers have become more adept at interpreting relatively complex commands: complete with direct objects, indirect objects, and prepositions. More often than not, however, even simple, common sense commands can go unrecognized by the game's engine—leaving some games to produce a generic, pre-determined message alerting players to the

incomprehensibility of their request. Though these default messages can be limiting in their effect of an open-ended world, they are far preferable in a narrative environment to nonsense.

In 1991, Dr. Hugh Loebner promised \$100,000 to anyone who could pass an unrestricted Turing Test, where:

[the] interrogator is connected to one person and one machine via a terminal, therefore can't see her counterparts. Her task is to find out which of the two candidates is the machine, and which is the human only by asking them questions. If the machine can 'fool' the interrogator, it is intelligent. (Saygen)

As of 2004, Dr. Loebner's prize has gone unclaimed, indicating that no programmer has yet to succeed at this task, so videogames will still have to wait for such a complex development to be made available to augment their narrative process. However, Murray also discusses several variations of these “chatterbots” where—once endowed with a proper backstory, conversational focus, or with pre-determined goals—the chatterbots performed remarkably well at fooling people, tricking psychiatrists into thinking that one particular chatterbot, “Parry,” was actually a paranoid and delusional human (223). These types of chatterbots with a very defined focus could work wonders in videogames, which, in remediating theater and film, draw upon stereotypes and stock characters—why should Robert Cath be quizzed about Sammy Sosa and Mark McGuire's home run battle in the late-20th century? Wouldn't a discussion of pre-World War I politics more likely be within his conversational grasp? The importance of defining a context in within the game's narrative will naturally limit the ways in which players are able to interact with other NPCs within a dramatic environment. By doing such, the player is able to reference schemas that will inform them how to interact with the environment, and what is appropriate action within the context of the narrative.

This is a concept that the developers of the game *Starship Titanic* addressed, as their non-player character (NPC) chatterbots are relatively skilled in conversation based upon the recognition of keywords. The tens of thousands of lines of dialogue in the game are testimony to the foresight of the developers in their scripting the various NPCs. The downside of interacting with the bots of *Starship Titanic*, and indeed a bulk of interactive fiction games, is the insistence that the player must type and read their responses; however, voice recognition technologies are becoming more robust—as evidenced by the overwhelming success of *SOCOM* and *SOCOM 2*'s implementation of the technology. It won't be long before players are actually chatting it up with the various denizens of the gamespaces they temporarily inhabit. Combined with the promises of the Erasmtron engine and its ability to generate dynamic content, this could be a very promising development for the future of videogame narratives, as text-to-speech readers become more lifelike with each new version and/or technological innovation.

Another definition of basic interactivity—the computer receiving, interpreting and responding to a user's input and then returning and displaying a change on the screen—is extremely limiting for the user experience, reminiscent of the clicking of folders on a desktop, or the arcade offerings of the early-1980s: action and reaction. And while the definition suits the computer's task at the lighter end of the interactive spectrum, it is remarkably limiting in describing what games today are actually capable of when they possess a strong narrative component, a capability that console gaming and more powerful desktop computing has allowed to develop independently of the text-based interactive fiction (IF) games. A more eloquent definition of interactivity in terms of it developing a more complex relationship between (inter)action/gameplay and a game's

narrative is given by Chris Crawford when he likens true interactivity to that of a conversation:

Thus, a conversation is a cyclic process in which each participant listens, thinks, and speaks.... the computer must perform all three steps in the conversational sequence—and it must perform them well. It must listen well, giving the player the opportunity to say anything relevant to the conversation. It must think well, coming up with interesting and relevant reactions to the player's input. And finally, it must speak well, expressing its reaction clearly. (*Game Design* 76-77)

Crawford highlights the requirement that the player be able to interrupt the computer's speech (i.e., the delivery of narrative) to add things relevant to the conversation, yet the closest example of this interruptability, or granularity, currently displayed by any type of interactive narratives can only be currently found in tabletop role-playing games and oral storytelling, a connection Fenty notes (13). However, when it comes to a definition of what would constitute a true interactive storytelling process—the Holy Grail of video gaming—Andy Lippman provides an excellent definition, even if it is one currently unattainable by recent graphics-based game titles. For Lippman, interactivity is the “mutual and simultaneous activity on the part of two participants, usually working toward some goal, but not necessarily.” Jane Douglas, author of *The End of Books—Or Books without End?*, further lists Lippman's criteria as interruptability of the narrative; fine granularity (“actors should not have to wait for the 'end' of something to interact”); graceful degradation (“the parties involved can still continue the interaction without interruption, even if non sequiturs or unanswerable queries... enter into it”); limited look-ahead; absence of a single, clear-cut default path or action; and the impression of an infinite database (42-43). Though recent video games are unable to deliver many of the true “interactive” components defined by Lippman, Crawford, and others, they are without a doubt advancing on a few of these issues as developers grow

more comfortable in exploring the medium. Wolf gives a more realistic notion of what we might expect from current interactive narratives,

Interactivity, then, does not have to work against narrative or even linearity; it simply requires that multiple lines of narrative be present, or the potential for a variety of narrative possibilities.... In an interactive narrative, different sets of actions and consequences are available to the same player-character and can be experienced on a subsequent playing of the game. (Wolf 109)

For an interactive story to be truly interactive, players must be able to intervene on the narrative with their own interactions—and that the consequences of a player's actions, or the elements of gameplay, are able to influence the outcome and unfolding of the game's narrative. Otherwise, the player is likely dealing with a strictly linear narrative, or non-narrative, experience. Very few graphical games up to this point have allowed for such interaction on the story level: titles like *The Last Express*, *Titanic: Adventure Out of Time*, *The Pandora Directive* and *Post Mortem* all allow for the alteration of the game's outcome to some extent with multiple endings and multiple paths through the narrative, but all still are unable to deliver a true, dynamic story experience.

Gameplay, or the sequences in which the player engages the game's engine, is a concept that Andrew Rollings and Ernest Adams define as “one or more causally linked series of challenges in a simulated environment” (201). Rollings and Adams define a whole series of the various types of gameplay challenges that games typically offer, from logical and moral challenges to coordination and reaction-time challenges. However, even though videogames like *Deus Ex* are taking into account the outcome of a player's actions on the story, mostly these unfold through by the engine recognizing a player's strategy; very few give players control of, or even take into account, a character's posturing, gesture, and vocal intonations, a connection Murray notes (191). Though the features of gameplay are intrinsic to the medium and are often taken for granted, it is the

marriage of gameplay and the game's narrative into a mutually-beneficial feedback loop, where the player's input actually affects and alters the computer's narrative output, that a small crop of innovative developers have been seeking for the past two decades as they slowly forge new territory in the narrative delivery of videogames and the creation of interactive narratives. The seemingly-ancient, text-based IFs showed players a promise of what was possible, as the interaction and the narrative were merged through their shared representation, allowing the user to never have to break the frame of the gamespace in their interactions and reception of the computer's output. Additionally, the conversational inclinations of the text parser allowed for detailed examinations of inventory items and in having conversation with textually-based NPCs. More recently, however, the bulk of game developers are still integrating the newest in graphical and hardware enhancements into their games or in producing sequels rather than focusing on the narrative process itself and utilizing the computer's gift of interactivity to augment their story. Many games still focus on gameplay mechanics as a primary function, merely wrapping a story or plot over the game mechanics. Very few developers, mostly due to industry pressure, focus on overcoming and collapsing the challenges imposed by this rift: between a player's desire to explore the gamespace and interact with characters and objects on one hand and the delivery of the meticulously crafted narratives of the game developers on the other, as well as crafting new and innovative ways to tell these stories.

Storytelling Is A Process, Not A Variable

One essential problem with this divide is that the majority of game developers treat narrative and a player's interaction with their narrative as simply another variable to be included with the code, if there's a narrative included at all. This assumption made by a

bulk of code-minded developers that story(telling) is simply a product, rather than being a process in and of itself, hampers developers' abilities in maximizing the possible emotional affect that games are capable of having on players than if they were to allow players to play through the grander notions of storytelling, forcing players to act their way through the grander truisms of storytelling instead of being the passive recipients of its unfolding (Crawford, *Interactive Design* 340). Even though *Half Life* doesn't do this, certainly when it was released, the integration of the game's narrative material into the actual participatory game experience was virtually unheard of in the industry's current offerings of 2D and 3D shooters, even though players couldn't necessarily affect the outcome of the game's narrative—but videogames are a medium where developers must be content taking small steps towards such lofty goals in such a money-minded field. However, after the decline in popularity of the adventure game genre in the early to mid-1990s, the gaming industry was saturated with *Quake* and *Duke Nukem* clones, which had an emphasis on style and action over any real narrative substance or innovation. *Half-Life's* was important in that it tried to give the player agency, or control over the actions of the player-character, during the game's scripted narrative sequences—an important small first step in handing control over to the player. *Half-Life's* unforgettable introduction allowed players to control Gordon Freeman during his slow descent into the Black Mesa complex, free to move about the confines of the tram to see the inner workings of the top-secret defense contractor. This introduction gave gamers a glimpse of what this new type of in-game narrative delivery offered—one that utilized the game's own engine rather than pre-rendered cut-scenes and one that actually allowed the player freeform movement through the gamespace as the game's narrative unfolded around

them.⁴ As revolutionary a development as *Half-Life* proved to the first-person shooter genre, it has been something that very few games since have matched in terms of allowing players to experience the narrative scenario unfolding around them, rather than having it dictated through the passive reception of in-game, letterboxed cut-scenes or full-motion video: in most cases, all of it arriving at one solitary ending.⁵ Even *Half-Life*, as revolutionary as it was, still delivered a linear game experience with only a binary ending: the player must choose to work for the Man in Blue or to keep his integrity and reject the Man's offer—a decision that culminates in Freeman's, and the player's, implied death, as the player merely sees himself/herself surrounded by a horde of aliens as the screen fades to black.

Crawford details an excellent analogy of how developers should begin considering their role as a digital God. Developers should consider themselves armed with the powers of Creation to imagine and develop a virtual world, its inhabitants, and the rules on how events in their microverse are able to unfold: “God determines the principles under which the universe operates, but grants us free will to choose as we wish within those rules.... God is a process-intensive designer—He specifies not the data but the process!” (Crawford, *Interactive Design* 326) Here, Crawford is calling for designers to think not in terms of micromanaging every last plot nuance. Rather, they should merely *set up scenarios* in which the game's narrative can unfold and allow the player to have an effect on the story's unfolding. Crawford uses the example of *Romeo and Juliet*:

⁴ Years after *Half-Life*, games like *American McGee's Alice* and *Final Fantasy VII* still took all control out of a player's hands during the delivery of the game's narrative – many still do. *FFVII* was especially aggravating in some instances due to narrative/dialogue sequences lasting ten to twenty minutes or more.

⁵Sometimes, full-motion video clips *are* a game's cut-scenes – so the two terms are not necessarily mutually exclusive.

Thus, an interactive *Romeo and Juliet* would not be about Romeo and Juliet; it would be about the collision between love and social obligations.... If you insist that an interactive *Romeo and Juliet* must be about Romeo and Juliet, then you must also insist that it follow the plot of the original play. But if instead you shift your point of view and require that an interactive *Romeo and Juliet* be about the collision between love and social obligation, then a great many plot developments are possible that remain true to the work. (Crawford, *Interactive Design* 340)

This quote illustrates the profound possibilities for interactive narratives if developers are able to take a step back from a game's pre-determined plot and instead focus on more abstract notions of the storytelling process itself: the setting up of situations and the resolution of those situations on the behalf of the listener/player, either passively or actively. *Grand Theft Auto 3* did a remarkable job at displaying exactly what is possible when a game doesn't dictate how players interact with the virtual space. Granted, *GTA3* may have had a strictly linear story that the player *had* to follow to overcome the narrative bottlenecks for Staunton Island, Shoreside Vale, and the endgame; however, it is not required that the player do *anything* after dropping off Luigi's prostitute after the game's first mission. The postmodern Noir York backdrop that Rockstar Games coded in *GTA3* proved to the industry that gamers appreciate playing within living, breathing, interactive worlds. Imagine what an open-ended, transparent narrative process could have provided to *GTA3*'s linear plot. Crawford's Erasmatron engine is one of the first narrative backends or engines to address these needs, and it will be discussed thoroughly later.⁶ With recent game engines being relatively modular in

⁶A backend serves to calculate and display the results of data outside any field of view of its audience. For example, *Baldur's Gate*'s use of 2nd Edition *Advanced Dungeons and Dragons* rules acts as one component of *BG*'s backend, as the engine calculates such *D&D* statistics as dice rolling, armor class, THAC0, and damage without explicit reference in the represented gamespace. The gamer does have the option in *BG* to view what values the engine is calculating, if they desire. Another example is Havok's physics module, which when employed in games supplies realistic physics to developers for a licensing fee – this saves developers time in having to code from scratch their own physics.

their design, a narrative backend like the Erasmatron could yield amazing results for interactive digital storytelling.

One of the biggest problems of interaction with a world with a truly infinite database is that if players were *truly* able to do anything, say anything to anyone, and combine items in the world in any way they saw fit, the computing requirements would be so immense that they currently remain outside the capabilities of personal computing. Therefore, to eliminate the need for developers to account for and to script the infinite possibilities of the game world, the developers currently need to include a direction for the drama to occur which limits what the player can do within the dramatic scope of the game's narrative. For example, in *Grand Theft Auto 3* there is a mission where the player must drive out to a dock and kill a pimp who has been underselling Luigi. The game gives no method by which players are to carry out such a mission: they can punch the dealer to death, run him over with a car, shoot him with a handgun, or do nothing and drive around the city—but you cannot tap him to death with your finger, or grab him by the hair and ram his head into his car trunk, or make an impassioned plea that he give up his line of work and join the clergy. The limitations of *Grand Theft Auto 3* become apparent in these ruptures, when there's never an option to offer the player's target a bigger cut of money and recruit him to Luigi's gang, or other such options. Certainly, concerns like this lie outside the considerations of the developer, even though they are not unrealistic or outside the game's narrative possibilities, necessarily—you just can't do them. Once truly interactive storytelling is achieved, scenarios like this may be possible, while simultaneously preventing options like *GTA3*'s lead character moving out to the suburbs and becoming a farmer, or getting married and moving into a house with a white

picket fence—for those are *certainly* outside the scope of what the game is trying to accomplish and belong more appropriately in titles like *The Sims* (2000). However, the creative dynamic between the developer and player should be acknowledged and properly encouraged by developers, one factor which allowed Peter Molyneux's *Black and White* (2001) to succeed, as developers wrote and coded numerous possible outcomes and dialogue based on the ways in which players and their animal totem responded to the prayers of their subjects. Additionally, the player's moral alignment is also considered in response to their actions, and they are praised/denounced for having undertaken certain (in)appropriate actions. One funny example is when the player answers the prayer of a mother looking for her lost son. The player can find and return the son to increase their positive alignment, or they could hurl both mother and son into the ocean, or feed the son to the totem animal—and amazingly, it's all accounted for by the developers.

Limiting Player Choice And The Context-Sensitive UI:

The Holy Grail of gaming—an infinite database of possible interactions—may be missing the point of what gamers seek in an interactive narrative experience: a narrative constrained by the demands of dramatic choice and a videogame's diegesis:

Some object that this [limited choice in the game] is too great a constraint to place upon the player; players should be free to express their creativity, to input choices not anticipated by the storybuilder.... [this] represents a noble goal.... [however,] the laws of drama do not permit arbitrary behavior; they constrain the actions of characters in stories to a tiny set of choices. (Crawford, "Interactive" 263)

However, despite even this rather promising definition of interactivity with the gamespace, the few games that claim to offer multiple ways in which to complete the game's challenges often display a clear, pre-determined, preferred course of action for every mission in their level design—one that will yield the player the least amount of

trouble for the most amount of effort and/or patience. Often these require the player to sneak to out-of-the-way places, and levels are obviously configured in their layout to outwardly imply such a solution to the problem. Levels such as this act to constrain the amounts of interactivity a player may have with the narrative and the gamespace by limiting their physical movement throughout the world, and by doing so they don't allow the player's infinite creativity to be utilized—as choices are often reduced to binary outcomes: either sneak in one preferred path or walk in the front door guns blazing and blow everyone away into tiny giblets. One recent example of a game with promising level design is Crytek's *Far Cry* (2004), which bypasses many of these needs by making the bulk of the game's navigable space into island chains. With the exception of a few indoor environments, the islands give players numerous strategies with which to dispatch their enemies. In the beginning of the game, the player is told they must investigate an enemy camp. A binocular scan of the camp reveals numerous mercenaries going about their business: having conversation, training with firearms, pacing back and forth. The player *can* choose to attack the camp from head-on, but a slightly further swim to the east yields two lone mercenaries only standing next to their armored jeep—a far better alternative than the mercenaries actually being in the jeep. Jeeps in *Far Cry* possess a mounted machine gun that players can aim and fire with their mouse, and the jeep itself provides a valuable tool for blasting players' way to the rear of the enemy camp—where they can sneak in undetected to the objective on the map and are promptly rewarded with a medical kit and armor pack. *Far Cry's* unscripted, intelligent AI forces the player to consider these types of tactics, as the enemies are touted as the most intelligent combat AI since *Half-Life's* military commandos. Their intelligence is evident in their ability to

call in reinforcements or scout out and patrol the source of unusual sounds (e.g., gunfire, the sounds of the player running through the bushes). However, just as long as the player achieves the objective, outside-based missions such as this provide a wide array of tactics and strategies, all dependent solely on the player's preference. Minor changes in player strategy can yield victorious results in fights where the player may have had problems initially. Games like *Far Cry* hint at options for stuck players through the layout and design of their space, but all possibilities are ideally open for use by the player within the confines and limitations established by the abilities of the player-character and the skills of the gamer. However, unexplainably the dramatic arc of the game prevents the player from talking *with* enemy mercenaries, even if to give them a brutal interrogation—the mercenaries have a problem with Jack from the beginning of the game, even though he's simply an ex-military charter boat captain barely able to make ends meet. Jack's lack of any other option besides blowing everyone away mercenaries on the island displays another rupture in the game's interactivity: here the interaction is with the terrain and a few elements of the gamespace, and not the narrative itself.⁷

The problem with creating any true, openly interactive storytelling system is the seemingly infinite number of actions that can be used to interact with people and objects contained within the gamespace, a problem that Crawford's Erasmatron is specifically designed to handle (Crawford, *Interactive Design* 345). Imagine the number of verbs that could simply be used to interact with a telephone: dial, open, throw, drop, pick up, speak, pull (out of a wall), give, turn up/down (volume), turn on/off (ringer, or the phone itself). That's a lot of coding for a relatively simple interaction with a phone. Now take that and

⁷Jack is unable to hire the mercenaries for his own use, or even engage in active conversation with them – as he is only able to eavesdrop on enemies through his laser-sighted binoculars.

multiply it by all the items one may find in a house/office and then to a building and then a city and the problems become immensely apparent in terms of the man and computing power required to code this massive web of interaction. Janet Murray discusses one way to limit this infinite database when she discusses *primitives* in interactive narrative.

Primitives are “the actions of the interactives themselves, as structured by the author” (Murray 190). As adventure games of the early-1990s began incorporating features such as 256-color graphics and mouse support, developers began reducing the amount of possible interactions with the gamespace by reducing the user's options to a series of a few commonly-used actions, due to computer processing bottlenecks imposed by the noticeable increase in complex, color graphics and early sound processing, and by the increased reliance on a computer's mouse over its keyboard (due to an increased popularity in *Windows 3.0/95*, perhaps?). To compensate for this required reduction and newfound attention to aspects other than a game's story or gameplay elements, developers then reduced the once “open-ended” text parser made popular by IF titles to only the most essential hard-coded actions that would eventually come to be denoted by icons, in most cases: *walk*, *open*, *get*, *use*, *look*, and *speak* are a few of the commonly used primitives still in use today.^{8,9} The functions of the primitives are synonymous with their label: *walking* allows the player to traverse between different spaces, while *open* allows the player to open doors and windows. These devices were seen as a way to limit the dramatic choices of the textual/2D graphic adventures of the mid-1990s, such as Sierra

⁸ “Open-ended” only in that a player could type whatever he/she wished, and the parser would accept the textual input, even if it was unable to comprehend what the player had typed.

⁹ Games like LucasArts' *Maniac Mansion: Day of the Tentacle* (1993) and *Monkey Island 2* (1991) still retained a more complex interaction system that required the player to click on a stylized textual list of possible interactive possibilities (*walk*, *open*, *get*, *use*, etc.) before clicking on the object of their interaction.

On-Line's *Kings Quest V* (1990), much to the chagrin of many adventure gamers, who felt *more* limited with this new style of interaction and preferred the generic textual messages prompting to a simple red “X” for an icon. Murray continues, “In order for the medium to mature, storytellers will have to develop more expressive primitives, simple actions that will allow ever-subtler input by the interactor” (190). Murray discusses how a possible use of a mood slider (negative – neutral – positive?) could make these iconic primitives more robust in their function. For example, if a player were in the process of handling an object and wanted to drop it, activation of the negative slider might allow the player to throw the cup violently against the wall (or wherever she aimed). On the other hand, the neutral slider might cause the character to drop it on the ground (causing a noise), or place it on a countertop, while the positive could make the player-character delicately place the object down, not clueing in enemies in surrounding rooms to their presence. This, in combination with a context-sensitive user interface (UI) would be extremely beneficial for games and gaming, as the often and overused “action” button is beginning to prove itself inadequate in handling complex interactions with a game environment—as interaction with the game space is often reduced to a binary on/off state. A context-sensitive UI would allow users to access a variety of functions for each object, something that Revolution Software's *Broken Sword 3* (2003) has done recently in a limited fashion to the acclaim of critics and gamers.



Figure 1. *Broken Sword 3*'s use of a context-sensitive UI. A) The hotspots over the Colonel character use iconic actions that would be used in interacting with a person. B) When George needs to climb, the icons are substituted for other, more appropriate actions.

The game's interface affords the viewer a number of possibilities beyond a traditional “action/use” function, sometimes giving the object two different “use” functions if the game's narrative calls for it. Additionally, the transparent interface allows for substitution of iconic primitives, which yield different results according to the situation that George Stobbard or Nico Collard, the game's protagonists, find themselves in. In the first screenshot above (Figure 1-A), the star hotspot above the Colonel's head recalls the appropriate *speak* and *look* icon in the interface. Additionally, when George finds himself scaling rock edifices (Figure 1-B), the icons are substituted with actions appropriate to rock climbing: *drop down* or *pull oneself up*, with move left or move right being controlled with the directional keys. *Broken Sword*'s use of hotspots attached to usable objects allows these interactions to occur and serves to limit the various objects with which the player can interact. As gamers move closer in proximity to the object hotspots, various options for each object appear in the UI, while scrolling through available hotspots is available at the press of a key. The use of the four hotkey approach in *Broken Sword 3* still finds itself subjected to many of the same ills that Crawford and

Murray list in terms of overly-limiting interaction with objects in that it only allows for four potential interactions, all of which are still rather limited in scope. However, despite this limitation it still is able to notably progress interaction with the game's objects beyond the on/off states that graphic games currently utilize, as it addresses and opens up possibilities for developers in the future if they choose to employ the use a context-sensitive UI. The interaction system employed by *Broken Sword 3* allows for the player to still interact with a number of items to a limited extent and keeps interaction limited to important objects, while also allowing for multiple ways in which the player-character is able to manipulate objects.¹⁰

Future developments in context-sensitive UIs may allow for primitives to be combined for more complex interactive chains. What makes *Broken Sword 3* so attractive is its near-transparent interface, as in-game cut-scenes are mostly only denoted by the UI fading quickly out while the cut-scene plays.¹¹ This, in combination with a super-intelligent, cinematic third-person camera immerses players in the game's narrative sequences to the point where players don't necessarily mind losing agency during the game's narrative sequences. Despite all these unique advancements, the developers of *Broken Sword* limited their narrative to a strictly linear structure, a major complaint of reviewers. However, this game employs a somewhat unique technique in the delivery of its narrative that will be discussed later.

¹⁰ Unlike *Shenmue* (2000) or in *The Sims*, where the player is able to interact with virtually everything in the environment.

¹¹ Developers have created their own unique conventions for dealing with cut-scenes. Some include letterboxing the in-game narrative cut-scene, cutting to a CGI or FMV clip, or even integrating the CGI and the game action with slick camera maneuvering, as *Final Fantasy VII* displayed. The concepts of cut-scenes have been covered extensively by other scholars such as Mark Wolf, Andrew Rollings, and Ernest Adams.

Evoking Schemata: Limiting Dramatic Choice By Genre And Natural Affordances

Another way to limit the infinite possibilities of interaction with the environment is to set the fiction within a strongly-defined genre like mysteries, thrillers, or science-fiction. These highly developed and stylized genres dramatically limit the ways in which certain characters are expected to react and what ranges of behaviors are considered appropriate as determined by the schemas and conventions of the genre. Murray gives the example of the detective mystery, which requires that she “question all the characters I meet about what they were doing at the time of the murder and keep track of all the suspects' alibis.... I perform these actions not because I have read a rule book but because I have been prepared to do so by exposure to thousands of stories that follow these patterns” (192). These schemas limit the ways in which players are expected to interact with the world: one would hardly expect a virtual Humphrey Bogart to put on Mary Astor's gown and mascara, so why make it even an option if there were an interactive version of *The Maltese Falcon*? The schemas evoked by various genres are able to guide the reader through the experience, as well as restrict the ways in which it is appropriate to interact with the environment and other NPCs. The mysterious Robert Cath shouldn't necessarily be able to approach the various members of the Orient Express and bug them constantly—he's trying to keep any attention away from himself, due to his shadowy past. Rather, the game's approach to have the player eavesdrop on conversations makes a lot more sense dramaturgically, as Cath does his best to lie low while he discovers what happened to his deceased friend, Tyler Whitney. Cath's mystery and his detachment from the passengers onboard inform the player as to how they should approach their interactions with the clientele and crew—by forcing the player to keep a low profile in his interactions with characters and the train.

In setting the game in the historical context of the Orient Express, developer Jordan Mechner opened himself up to another problem that video game designers have been running into with recent advances in computing technology. In their desire to mimic reality, developers fail to account for many of the natural affordances taken for granted in interacting with a virtual representation of our three-dimensional reality. Even though the *The Last Express* gives the player control over some obscure interactions such as pulling the train's emergency stop cord (which signals an endgame cut-scene), it fails to allow Cath the ability to do things as simple as pulling out the jumpseats attached to the walls of the Orient Express. Certainly these actions are not necessary, but the developer's decision to create a realistic recreation of the Orient Express shouldn't prevent the player from doing this, or even from stealing a few dinner napkins—perhaps to clean the blood from Cath's shirt? However, the player's inability to interact with the environment in *The Last Express* fortunately adds to the mystery, as he/she is able to envision a suave Cath walking through the cramped hallways of the Orient Express uninterested in the banalities of *the* icon of land-based luxury travel in early-20th century Europe.

This is a consideration that the developers of *Max Payne* (2001) and *Max Payne 2: The Fall of Max Payne* (2003) paid attention to in its environments by making a number of objects pseudo-interactive: sinks, shower heads, toilets, lockers, televisions, light switches, radios, and audio/lighting mixing boards are all available to be triggered by the player. But despite these various objects scattered throughout the levels, rarely do they add any emotional depth to Max or further the game's objectives, as the interactions with the Orient Express permit. The television shows scattered throughout *Max Payne 2*'s narrative, such as *Dick Justice* and *Lords and Ladies*, lay on the pastiche even thicker

than Max's own narrative account, but, by listening to them, the player is given an opportunity to get a deeper picture of Max Payne's personality as a videogame character—whereas sinks and toilets, the bulk of the game's “interactions,” don't give the player any deeper insight into Max's tortured mind. Most of the props in the game are merely there to provide players with another opportunity to push their “action” key, even if it has no direct bearing on how the game's narrative or action unfolds—moreover, most have no effect on the surrounding environment, except for light switches.¹²

Additionally, *Max Payne's* choice of graphic novels cut-scenes to deliver the bulk of the narrative prevent any real interaction with the narrative material to take place, sealing the game's linear trajectory, and hardly ever do important narrative cut-scenes occur with the in-game engine. Ultimately, the interaction with the bulk of *Max Payne's* environments feels hollow and unnecessary due to the linear narrative limitations imposed by the graphic novel sequences—but in choosing to recreate a virtual representation of our reality digitally, Remedy Entertainment created a situation in which they were forced to represent these menial things to hide the fact that the player's illusion of interactivity is really just smoke and mirrors—*Max Payne* isn't interactive in the ways that Lippman defines, or even in the ways that *Deus Ex* attempts to be. Even with the objects available for player triggering, no *real* interaction occurs. Max cannot rip out a plumbing fixture and use it as a weapon, or ram a villain's head in a toilet and pull the handle. The game is limited in its interaction with objects, like many games, to a binary interaction of an on or off state (like televisions, lockers, light switches, etc.) or simply interactions that cue up specific animations with each press of the use button (showers,

¹²The light switches also have no effect on Max's or the NPCs' eyesight or their shooting efficiency, which could hardly be considered “realistic” in a game that goes through great pains to represent reality.

toilets, etc.). Games that have tried to allow for in-depth interaction with the gamespace, most notably displayed by the *Jurassic Park* franchise *Trespasser* (1998), have failed miserably as gamers discovered that attempting to manipulate objects in real-time by combining various keyboard and mouse commands quickly becomes a frustrating experience without specialized hardware to augment the process.

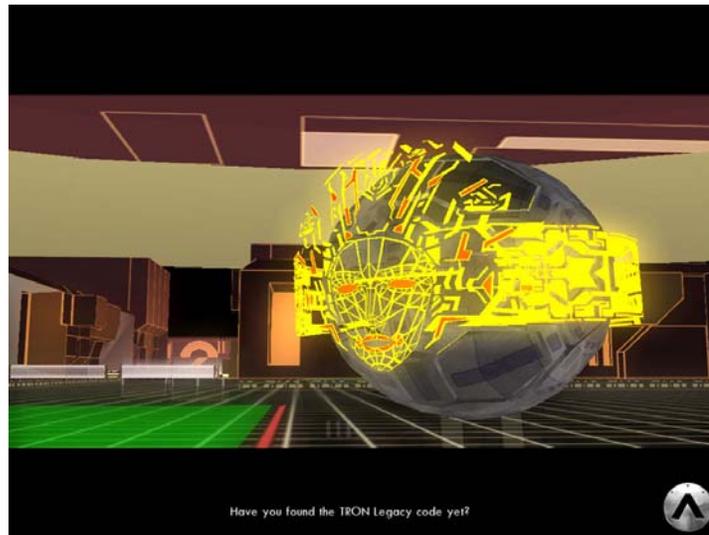


Figure 2. *Tron 2.0*'s stylized universe transports the player to a world filled with new possible schemas for interacting with the gamespace.

This is where games like Monolith's *Tron 2.0* (Figure 2) and other fantastical, über-stylized game adventures are able to succeed. Due to their transferring the player into worlds previously unseen by our physical eyes, developers are able to play with the natural affordances offered in these new worlds: maybe up *is* down, maybe green is red. So long as the system and its rules remain consistent, then players are expected to adapt to what the designers require of them—within reason. And even though Monolith did not completely disrupt players' expectations of the natural affordances of the objects represented in *Tron 2.0*, games such as these that transport players to new, abstract places are able create totally new schemas under which players can interact, shunning any real

life equivalent—contributing to a richer, fuller game experience as they break free of the demands required of representing our own three-dimensional reality. *Tron 2.0* stands as a testimony to the vision held by the Disney film of the same name, and the game's levels are stunning revisualizations of the originally drab, yet imaginative, filmic *mise-en-scene*.

The player's character—Jet, son of the film's Alan Bradley—is digitized into the representation of the inside of a computing system to rescue his father after a sinister corporation has kidnapped him to gain control of his bio-scanning technology. Inside the computer system there are viruses, files to copy, programs to execute, and system upgrades to purchase. Interesting weapons include a bomb that contains a blast of illogic, while monsters include Intrusion Countermeasure Programs controlled by the evil Kernel, Resource Hogs, and Rector Scripts that seek to corrupt untainted software. This stylized software universe, overseen by *Blade Runner* conceptual artist Syd Mead, owes nothing to the reality outside our window and can thus take its audience on whatever ride it wishes and demand whatever it wants out of its audience—as long as it remains consistent, which *Tron 2.0* manages to do successfully. The schemas the game evokes from the user are unique in terms of interaction, but very predictable in the nature of enemies and weapons—they're all mostly straight out of technical writing documents: kernels, il/logic, intrusion countermeasure programs, and scripts. The game is thus able to provide a new visual schema under which the player's mind can visualize such banalities as kernels, providing a whole new way in which to visualize, experience, and imagine what happens inside a computer's case.

Stylistic Abstraction To Facilitate Storytelling And Dramatic Choice

Scott McCloud, in his *Understanding Comics*, discusses the ways in which comics vary in their levels of abstraction and how as comic characters are rendered more

abstractly, audience identification with them increases (37). Certainly, this trend is noticeable in gaming, with its plentitude of cuddly videogame mascots, and can be applied to the function of a game's characters and represented virtual spaces. In its failures to allow the player to interact with the peripheral details of the Orient Express like the jumpseat or napkins, Mechner clues the player in that this representation of the Orient Express is a stylized abstraction of the train, and not necessarily an attempt to recreate the Orient Express as a fully-realized vehicle for interaction (like Cyan's *Manhole*, whose focus is solely on interacting with elements in the environment)—it is, more than anything, a convenient vehicle for Mechner's intriguing narrative. The objects and NPCs of the Orient Express, like the pre-rendered, static backgrounds of the Orient Express, have been stripped down to their bare essential characteristics—mostly due to technological requirement—but also as a way to facilitate the player's identification with the abstracted characterizations Mechner presents and the graphic representations that embody them: Schmidt, the untrustworthy German; Alexei, the Bolshevik revolutionary; Sophie and Rebecca, the young Bohemian aristocrats; the mysterious Kronos.¹³ This reduction of their essential visual-iconic qualities by rotoscoping the actors from filmed camera footage, in addition to Mechner's superb writing and the excellent voice acting and sound design, enables the player to identify with and form opinions about these various characters based on abstractions of people the gamer may know in their own lives, increasing player identification with Cath. It was the combination of all these distinct elements—the art design, sound design, the writing and its delivery, and the Art

¹³It is important to note that Mechner and his development team did their best to recreate the Orient Express, rendering down to the proper number and type of screws that were actually used to build it – so it is no slipshod recreation. It is just a recreation where certain types of interactivity are encouraged more than others.

Nouveau stylization—that forged *The Last Express* as a memorable game experience that game critics and ludology scholars still recall fondly. But perhaps in addition to this, it was something else: *The Last Express* is one of the few gaming experiences that offered a

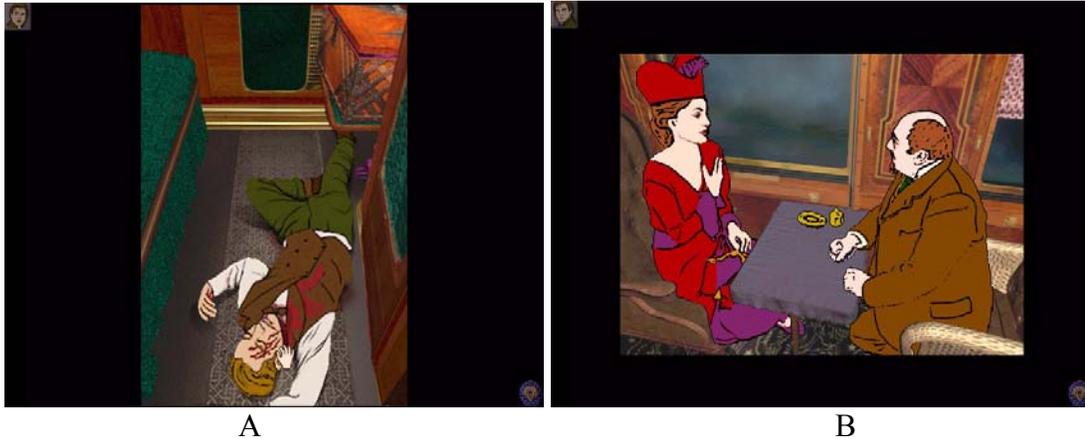


Figure 3. *The Last Express* utilizes stylized and rotoscoped captures of its actors. A) Tyler Whitney's corpse, found in his cabin. B) Violinist Anna Wolff and August Schmidt talk in the salon.

glimpse of what gaming really has to offer in terms of the promise of interactive narrative—it reached a convergence where an engaging narrative experience is combined with a product foregrounds its significantly removed representation of reality (Figures 3-A and 3-B), in opposition to the industry's current obsession with representing in great(er) detail the finer nuances of our physical reality. The industry often forgets that gamers have traditionally played games to escape reality and to have their minds totally consumed by an alternate universe that is safely tucked behind the confines of one's monitor or television. In there being more and more done to represent an external reality, while generally ignoring the mechanics of story and plot, the blunders of games like *Max Payne* become painfully apparent: the various furnishings that crackheads store in their apartments aren't all that interesting, especially with the limited manipulation options provided by the game. The stylized games like *The Last Express* and *Tron 2.0* succeed in that they foreground their abstracted stylization and completely obliterate any fantasy the

mind can possess of a shared representative reality with that of its audience—a connection between videogaming and animation that Paul Ward notes in his article, “Videogames as Remediated Animation.”

Ward begins his essay by discussing his desire to more fully appreciate and understand what video games offer by considering them a form of animation, and how “animation’ might encompass a range of media—including videogames, special effects and other computer-generated imagery” (122):

In the case of the videogame... objects and actions are mathematically modeled and manipulated, and the text is stored as binary code. There is therefore no action that has been “captured”: all that we eventually see is a complete creation, or simulation (the obvious exceptions to this are animated films and games that use motion-capture techniques). In traditional forms of animation a corresponding thing happens in the sense that any movement action is not ‘captured’ but is rather *created* (or simulated) frame by frame. (Ward 123)

The various components for video games are stored in files much like the individual cels in animation, with each element holding a specific gesture of the entire finished product. Video games are dispersed among sound clips, models, model textures, animations, effects, and created from a multitude of software suites. Once the player loads the game, the engine is what ultimately combines the work into a unified gestalt and displays it on the computer's monitor—the creation of the game experience itself is a mechanical endeavor, it just takes human sweat to get it working properly: much like the processes of filmic animation where components of are individually drawn, assembled, photographed, and then rearranged for the next frame and ultimately projected into a unified gestalt.

When cartoons are projected, it is only in the space between the lens of the projector and the screen that any actual product comes into being—otherwise, it's just an inert piece of celluloid. This is very similar in relation to the medium of the videogame,

as Ward asserts, “What they have in common though is the fact that what they 'show' us—totally created world or totally created movement—only exists and has only ever existed in the simulated representation itself” (123). Videogames materialize only at the moment that the computer's processor is able to receive a user's input, execute the developers' instructions, send the results for interpretation to the graphics card, and display the changes on the screen—in blistering excesses of 100s of frames per second.¹⁴ Like animation, it is in the space between the screen and the viewer's gaze that the game materializes (Taylor). Humans are not even present when it comes down to the processes of projection and reception in animation and videogames, nor has any of the movement they will perceive actually ever recorded or carried out by any concrete being—all we see, “is a complete creation, a simulation” (Ward 123). We, as the audience, are there only to be engaged in the act of synaesthetic reception, or to cue the machines to do their work.

Additionally, 2D games such as *Diablo 2* contain detailed libraries of player and enemy animations. Since 2D games aren't able to generate new animation cels in real-time like 3D games do, every possible move has to be painstakingly rendered for every possible movement in the entire game—even more so in the recent 2D offerings, which are having to compete with the high-resolution, detailed 3D engines.¹⁵ These animation

¹⁴Gamers insist for higher and higher rates in frames-per-second (FPS) and polygon computations with each new generation of video cards, despite the fact the mind cannot usually perceive any noticeable difference in the smoothness of a game's FPS beyond rates in the seventies – three times the amount of frames in comparison to animation and film that are required to produce a completely smooth and seamless presentation of the gamespace.

¹⁵Three-dimensional games do use pre-rendered or motion-captured animation for their actors at the time being. Inverse kinematics are only recently being supported by videogames in their physics engines, and mostly for death sequences (“rag-doll physics”), is a promising development that hopes to allow player-character bodies to be more reactive to the surrounding terrain.

cels and their corresponding sounds are cued and displayed based on the player's current action, the amount of enemies on the screen, any spells or weapons that are being used, the current background, loot from dead enemies, among numerous other elements: with everything received, interpreted, calculated, and displayed for the viewer in less than a blink of an eye (for those blessed with a fast computer), in stark comparison to the months or years in production time like their hand-drawn celluloid cousins. Games certainly take a long time to complete, however most games hardly ever deliver the exact same experience twice—even if it's only the actions of the player which change.

The abstraction and stylization inherent in cartooning and animation draw attention away from the spectacle of pretty graphics or intelligently executed CGI, and more towards an emphasis on the story and characterization itself—something that *The Last Express*, *Tron 2.0*, old LucasArts adventure games, etc. all had a remarkable emphasis on, and indeed these were the strong points emphasized by game critics (Ward 124). *Max Payne 1* and *2* had a gripping story, but in also blatantly trying to accurately depict reality and all its various sinks and toilets, the developer pulls the viewer out of engaging the game's narrative and encourages them to interact with objects users can find in their backyard—when *Max Payne's* linear story is all it had going for it to begin with. *Max Payne* aspires to be a film mixed with a graphic novel, when perhaps it should be happy with simply being a game.

With recent advances in graphics technology, the process of cel-shading looks rather promising in this development. Cel-shading allows the game's engine to take a three dimensional polygonal model and render it much in the same way that cartoons appear, allowing the brain to use existing schemata in evaluating the conventions and

requirements of the gamespace such as black lines surrounding the outer edges of objects and characters, and the use of flatly colored spaces between the game's cel-shaded lines. UbiSoft's *XIII* (2003), though it openly flaunts itself as an animated graphic novel experience, the very nature of its delivery makes the game seem more of an interactive cartoon, but in doing so it is allowed to create a hypermediated interactive experience, with its inlaid graphic novel panels as XIII kills his enemies. The endearing laserdisc arcade game *Dragon's Lair* (1983) was also recently given a cel-shading 3D reinterpretation with highly nostalgic, and poorly selling, results—despite its successful reinterpretation of Dirk the Daring as a fluid action character and an amazing reimagination of the popular franchise in full 3D (Figure 4-A).

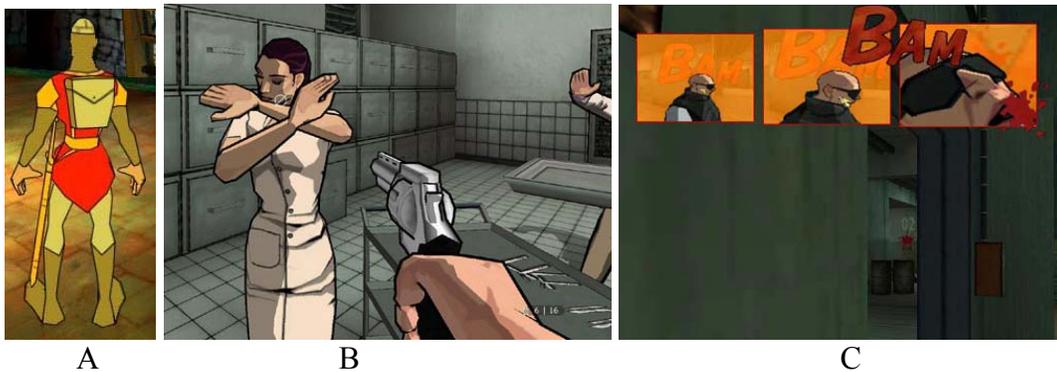


Figure 4. Cel-shading allows for three-dimensional objects to appear as if they have been drawn with standard pen-and-ink. A) Dirk the Daring in *Dragon's Lair 3D* (2002), B) UbiSoft's *XIII*, C) Inlaid graphic novel panels in *XIII*.

These games succeed in delivering a more immersive experience with their self-imposed graphical limitations due to our brain's inherent acceptance of the various levels of unreality they represent, as it no longer attempts to compare it to working schemas it applies more readily to games that attempt to mimic our reality. Even *Grand Theft Auto 3* is an animated, stylized representation of our reality, despite its graphic representations of violence. The reason why *GTA3* is able to get away with such graphic depictions of

violence is because, indeed, you're not shooting at realistically proportioned human beings: they're stylized, cartoony representations (however, the frequent and active encouragement of violence by the game is what is far more disturbing). In discussing the self-contained gestalt of cohesive gamespaces, Ward states, “[The limitations] of animated movement are... not complicated by references to anything but the most general sense of reality and the world of the game seems largely self-contained” (127). In essence, since these games do not represent a reality that readily offers itself to any available comparison, they are able to take whatever liberties they wish in pushing the audience's accepted notions of what reality is able to objectively convey—for example, *XIII*'s inlaid panels (Figure 4-C).¹⁶

As graphic and computer processing speeds increase, the gap between pre-rendered computer graphics and those generated for videogames in real time will eventually disappear, so developers may want pay attention to the successes and failures of the medium that gaming tries most desperately to emulate: film. The success of films like Pixar's *Toy Story* (1995) and *Finding Nemo* (2003), whose stylized animation styles garnered acclaim from critics and fans, stands in stark contrast to the much-anticipated, and ultimately disappointing *Final Fantasy: The Spirits Within* (2001). Whereas *Toy Story* and *Finding Nemo* found their success in their unique stylization of humans and our reality, *Final Fantasy*'s detailed rendering of human beings more often than not evoked Freud's *unheimlich* more than anything else in recent memory—save possibly Gottfried

¹⁶The infamous *Looney Tunes* short “Duck Amuck” (1953) violates the invisible fourth wall of animation/film as well as foregrounding the conventions of the medium as Daffy and Bugs interact with the short's “animator.” Had this violation of the cartoon's representational space occurred without warning, it would have caused a violent rupture in the viewing experience. However, since interaction with the animator occurs throughout the film, the cartoon's conventions can only be compared with itself in much the ways that *XIII* is able to utilize these extra-diegetic elements in its story.

Helnwein's "Mickey," another work whose simulated three-dimensionality is uncanny in comparison to Disney's two-dimensional referent (Figure 5-C). Amazingly enough, all three films were produced by Pixar's Renderman engine, and the movies stand as testimonies as to the strength and robustness of what Renderman is capable of accomplishing. Certainly I do not mean to discount the importance of what *Final Fantasy: TSW* represents in terms of computer-generated filmmaking; however, when the franchise exploded on the PlayStation console with *Final Fantasy VII* (1997) and *VIII* (1999), it was the highly stylized Cloud, Aeris, and Co. that provoked renewed audience interest in the franchise on the PlayStation, not just a general fascination with the spectacle of realistic-looking CGI.

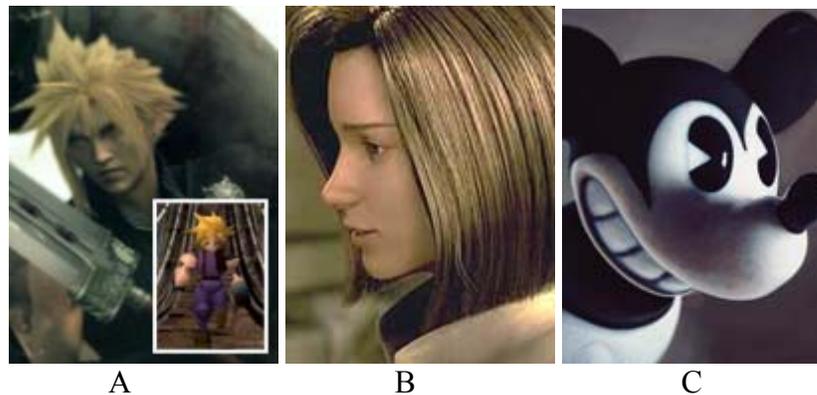


Figure 5. Games whose detailed renderings share a closer similarity with their referent allow for a more believable and less-jarring game experience. A) Cloud in a *FFVII* CGI film clip versus his in-game representation, B) Dr. Aki Ross in *Final Fantasy: TSW*, C) Gottfried Helnwein's uncanny rendering of "Mickey," whose referent is Disney's two-dimensional cartoon.

Final Fantasy VII's jaw-dropping, stylized CGI cut-scenes in the game succeeded because of the strong resemblance they shared with their in-game representations (Figure 5-A)—a referent that *Final Fantasy: TSW* does not possess, with its only basis for comparison being other films casting live human actors. In casting popular actors with distinct voices, like Steve Buscemi's character Neil Fleming, this unsettling effect only

grows in its intensity. In neglecting the previous character stylization of the *Final Fantasy* franchise in the attempt to produce a feature-length CGI experience centered around “realistic” human beings, something essential was lost (besides the interactivity) and instead of being an effective vehicle for narrative delivery, *Final Fantasy: TSW*'s animation drew attention instead to the uncanny rendering of its characters, the artifice and limitations of pre-rendered CGI, and the artificial construct of the film's characters and *mise-en-scene* (Figure 5-B). This claim isn't saying that games and CGI film shouldn't eventually strive for filmic photorealism: developers and filmmakers should just be aware that if they cannot accomplish it successfully, then they risk failing and reproducing the same results that ultimately led to *Final Fantasy: TSW*'s failure—destroying the delicate balance between the player/viewer's immersion and violently shattering the illusion and pulling the player out of the narrative experience. The human mind is far too perceptive to fail to notice when something that is attempting to be human actually *isn't*.

It may be interesting to note that since the *Final Fantasy: TSW* film, the franchise's characters still appear as slightly stylized humans, *almost* human, but not to the same degree that the movie tried to emulate—and, not surprisingly, a sequel to the film hasn't been mentioned. Squaresoft continues to emphasize the outrageous and flamboyant clothing, weaponry, accessories, and, of course, the long personal backstories for their characters as ways to more fully draw in the attention of the gamer, rather than the spectacle of looking at computer-generated, regular-looking humans.

Film, with its average length of slightly more than two hours for any long blockbuster (though *Lord of the Rings: Return of the King* has certainly upset that claim),

gives little opportunity to fill in the stories of its characters—as its focus is usually centered on the diegetic plot. Videogames' longer running times allow for the player to experience the plot and mission structure of the game's narrative, but can also provide significantly more details into a game's story than film generally provides—this, in addition to a player's agency over the player-character, allows the player to empathize more readily with the player-character's dilemma and eases the process of identification. Videogames' significantly longer narratives also provide players a reason to remain playing the game, providing rewards to players after difficult and strenuous action sequences with FMV/CGI clips, or a period of relaxation during the player's briefing—despite all the effort, most players *still* hardly ever finish the games they start (Mandel, “Slogging”). This emphasis on backstory is an area where *Max Payne 2* particularly excels, with the game's story being traceable through the events preceding *Max Payne*, in addition to the wealth of experience and emotion brought to the game by players in their previous experience with the game's plot devices borrowed from film and television. In addition to incorporating many noir and postmodern elements, *Max Payne 2* also recycles and reworks many of the game elements from *Max Payne*, like the Ragnarok occult club. This draws in elements and experiences from the previous game, and contributes to a richer experience, though one devoid of any real plot that the player is actually able to engage. This isn't to say that the game's atmospheric graphic novel vignettes fail to provide the player an atmospheric and entertaining respite from blasting evildoers. The problem with many games is that they attempt to disguise their “plot” in the form of missions for the player. Gameplay and narrative often become conflated, as the plot becomes the activity of playing and exploring. Outside of these considerations, it seems

that often there is hardly any consideration of how to deliver an actual plot outside of scripted sequences or CGI/FMV, a shortsightedness that has kept the bulk of videogames' narrative potential extremely limited.

Videogames that are able to consistently represent abstract and stylized worlds may best provide immersive experiences for users at the moment, as they do not hide behind false pretenses as to their true nature: computer-mediated, interactive animation systems. Videogames remediate a whole host of forms such as comics, as displayed by *Max Payne*; painting, in the backgrounds of two-dimensional adventures; radio, in *The Madness of Roland*; film, as in *Enter the Matrix* or *Metal Gear Solid 2*. In doing so, they are able to provide an interactive experience denied by any other prior medium, despite noble attempts by many artists who have attempted to transform these static forms into dynamic, writerly texts. Videogames that acknowledge their similarities with animation and appropriately highlight this convention through stylized hero/ines and locales may find it easier to immerse gamers in the narrative—as many of the games I will discuss more thoroughly later will demonstrate.

Additionally, videogames that attempt to mimic reality graphically in all its minutiae and allow violence to be visited on its NPCs may also find themselves drawing a lot of pressure from interest groups, as critics and consumers question: “When do games stop becoming games and start becoming murder simulators?” Developers Andrew Rollings and Ernest Adams address this point in their book, *Andrew Rollings and Ernest Adams on Game Design*, in relation to Raven Software's *Soldier of Fortune II: Double Helix* (2002), which was advertised on the merits of being able to blow off the individual limbs of the player's enemies. It's a problem that in many cases could simply

be sidestepped by stylizing the characters, rendering useless the need to animate excessive amounts of blood and gore as only humans are expected to bleed, not their cartoon likenesses. For example, the various traps in *Prince of Persia: The Sands of Time* (2003), would render a realistic human into gory, bloody chunks (i.e., “gibs”)—but since the Prince doesn't necessarily strive for a realistic representation of a human being, the traps don't have to shred him and the spikes don't have to puncture him in a gruesome shower of blood. The audience, in being able to perform the amazing acrobatic feats of the Prince, already holds him as super-human—or at least as talented and agile as a virtual Jackie Chan.



Figure 6. Various stylized and abstracted characters. A) George and Susarro from *Broken Sword 3*, B) The Prince of *Prince of Persia: The Sands of Time*, C) Alice in *American McGee's Alice*.

Games such as *Broken Sword 3* (Figure 6-A), *Prince of Persia: The Sands of Time* (Figure 6-B), and *American McGee's Alice* (Figure 6-C) possess graphics that don't necessarily rival the newest, more graphically detailed games. However, they don't have to. Their distinct stylization, abstract and exaggerated character modeling, and creative level design immerse gamers' minds in previously unimagined, detailed locales without the need to mimic any representational reality. Their main characters are humans, yet their stylized abstraction makes them far more believable than if they were to utilize realistic representations in their character models and textures. This willful

acknowledgment of the games' stylized and animated design allows developers to take players wherever they can imagine, and the brain and its software has no choice but to go along for the ride. Quite often, it's only when the game calls attention to its artifice through various mistakes on behalf of designers (bugs, among other things) or failing to live up to a believable representation of reality, that players aren't willing to hand over their disbelief to developers for extended periods of time and the game flops—the plentitude of combat-based first-person shooters that have flopped critically and fiscally are a testimony to this. Focusing on issues such as these will help developers in creating believable worlds for the mind. Maybe, just for a while, they should stop trying to recreate believable versions of ours that cannot measure up and instead work on taking our minds places they've never been.

Immersion, Transparency, And Mending The Seams

One of the few remaining problems that prevents games from overcoming the gameplay/narrative divide are issues stemming from transparency and its relation to a player's immersion within the title. As has been discussed, games that are composed of highly stylized characters and locales allow the mind to contain the game's graphical gestalt as a basis of comparison only with itself. In doing so, the player's suspension of disbelief is maximized—as it *looks* and feels like their character is somewhere exotic—and immersion and absorption with the game increases. However, as absorbing and entrancing as these exotic locales may be, inconsistencies among developers about a number of game functions still prevent the player from being immersed within the narratives they present. Included among these inconsistencies are a game's camera style, loading and menu screens, and inventory and HUD interfaces. Though developers are

now starting to naturalize and adapt these current necessities within the diegesis of the game as best they can, more can be done.

Laurie Taylor's *Game Studies* article titled "When Seams Fall Apart: Video Game Space and the Player" discusses videogames in relation to camera perspectives, player-character identification, and the Lacanian gaze. Taylor discusses how the player identifies with the player-character by commanding

an agent-position within or on the game and responding to new in-game data, be it information or action, from this position [of the player-character]. Because the player acts as and from this position, the player must in some way identify with this, or the possibility of this, position at least enough to function in response to the game space. This does not mean that the player must understand how it feels to be an FBI agent caught up in a conspiracy involving aliens and nuclear weapons, all while sulking over his recent divorce. But, it does mean that the player must function well enough to avoid whatever function ends the game and that she must in some way desire to continue the game. (Taylor)

Taylor discusses Fox Interactive's *The X-Files* (1998) FMV game, in which at one particular moment in the game, the sense of immersion in the gamespace and identification with the Wilmore character that the developers attempt to provide are broken when the player elects to click on a mirror in Wilmore's bathroom. Upon doing so, Wilmore's uncanny reflection "looks" back at the player. This act of direct looking, forcing the player to reconcile themselves as being Agent Wilmore as he stares back at them from a mirror, breaks the game experience as "Wilmore's looking at himself in the mirror assumes that the player (subject) has embraced Wilmore in such a way that Wilmore's looking, while outside the player herself, could be internalized by the player in terms of her representation of Wilmore as herself" (Taylor).

Taylor goes on to discuss the problems with first-person narratives and how they are used to deliver the player agency over the character. First-person camera angles provide the illusion to the player that they have mastery and control over the

environment. By using the first-person camera doubling as the player-character and gamer's visual perceptions, the conventions of the first-person camera act as a deliberate attempt to insert the player into the gamespace. Many games, however, still rely on filmic conventions to relay narrative, and therefore cut-scenes typically employ the filmic third-person point of view and invisible fourth wall that shatter the illusion that the gamer is in the gamespace, even though, as they are playing, the game is insisting that it is the player-as-player-character who is located in that space. Very few games that utilize the first-person point-of-view actually allow for the player to retain their sense of immersion within the narrative as it unfolds, and it is a technique that developers are starting to use in recent games like Activision's *Call of Duty* (2003), which has NPCs approaching the players in mid-battle and relaying them new plot details while the hellfire of war and staccato bursts of gunfire rage on about them.

One way to sidestep the disruption of immersion is something that many games have started to do recently, as Taylor has noted, in adopting a third-person point of view, as the game no longer disrupts player immersion when it shifts from a first-person, subjective replication of the player/player-character's visual field to the more objective third-person camera (Taylor). Sustaining immersion can be a difficult task, relying in part on the adeptness of the gamer in learning and being able to automatically apply new schemata within the gamespace (the process of engagement), the player's identification and psychic incorporation of their player-character, the relative ease in which players are able to navigate and explore the space, and for some gamers, the synaesthetic pleasures relating to being enveloped by sophisticated graphics and sound processing. Developers must walk a fine tightrope in order to build and sustain player immersion, which is why it

is important for developers to make the proper considerations and consider the ways in which they enhance players' abilities to immerse themselves in the games they play.

Zach Whalen gives an excellent example of possible frustrations in achieving an immersive "flow" state, and how even in games like *Grand Theft Auto: Vice City* (2002), the difficulties of sustaining a feeling of flow within the gamespace, even on a moment-to-moment basis:

For example, games that mix genre frequently require adapting to multiple styles of play. *Grand Theft Auto: Vice City* requires skill in driving and in firing weapons from both third and first person points-of-view. The game's graphics engine and controller layout clearly favors the driving portion of the game, and players often complain of difficulty in manipulating the player-character through third person view gun battles.... This problem frequently threatens to break-the-frame of the player's immersion into the game's world by forcing frustrated engagement with the control pad, but something about the balance between the game's unintended challenges and the game's rewards yields a fulfilling sense of expertise when I successfully play the game. This feeling of efficacy contributes to the experience being characterized as a condition of flow in that the unification of efficacy with a compelling narrative yields something like a creative flow state. (Whalen 14)

The adoption of a third-person camera angle allows for player identification with their game's player-character as well as covers up any possible ruptures in the gamespace, as the player no longer has to reconcile the shift from being an "inhabitant" of the gamespace to merely having agency over someone inside of it. By using the third-person camera, the game's field of reference always remains outside the consciousness of the player, the transitions to a narrative mode are far less jarring, as the player are accustomed to looking at their player-character. However, as Taylor states, the use of the third-person camera angle brings about its own set of problems, including that

they require a character model be designed; they require that the model operate correctly in terms of the game space design; and they must be programmed to deal with perspectives incompatible with the game's optics or physics (like seeing nothing but a wall for the screen when the player-character backs into a corner) or risk the destruction of the game space. (Taylor)

However, if developers are able to successfully and competently navigate these pratfalls, then they allow players the opportunity to identify with their characters, which can only aid in facilitating an engaging experience with the game's narrative as attention is no longer diverted by rips in the seams of the game.

Games such as the recent entry in the LucasArts *Jedi Knight* franchise, *Jedi Knight 2: Jedi Outcast* (2002), allowed the player to selectively adopt either a first or third person point of view, depending on the player's taste—with the exception of the multiplayer lightsaber camera, which forcibly adopts a third-person perspective, increasing player perception in the player-character's visual periphery to more naturally mimic reality and to allow them to perceive incoming lightsaber blade attacks to the extremities (an extremely vulnerable area of attack within the game); covering up any potential disruptions in the gamespace with to the game's intelligent camera; and enforcing a minimum gameplay handicap for participants engaged in a lightsaber fight. Additionally, the adoption of the third-person camera angle in *JK2* unlocks a host of acrobatic rolls and dodging maneuvers unavailable to players in the first-person perspective due to the disorienting effect they would have on a first-person camera, actually having an outcome on effective player navigation in this instance.

The use of the third-perspective gives players the sense that rather than affecting direct control over the environment, that they instead enter the world of the player-character through the player-character itself. Taylor discusses this topic in depth by comparing two popular videogame franchises and the effects that their camera has in terms of player identification and player agency:

If I play as me in *Medal of Honor*, anything that happens is my doing; if I play from the third-person perspective of Alice in *American McGee's Alice*, then I am

functioning, in a sense, as Alice. Alice is a part of me, but she is a determined part of me. Meaning that I can play as Alice and enter into her world through her. Thus, I can enter the space of Alice's world, Wonderland, by passing through the screen through my identification with and then psychic incorporation of Alice. In essence, Alice becomes my looking glass as any player-character can in a third-person point-of-view game. (Taylor)

The vicarious experience of traversing the gamespace through agency of the player-character prevents the narrative from ever breaking the frame of perspective and representation when the game shifts into a narrative mode that prevents the player from interacting with the game.¹⁷ Though agency may be taken from them in some cases, the narrative sequences in third-person games don't permit for the obliteration of the carefully-constructed player identity and the player's identification and empathy towards the player-character. The third-person camera also has a host of other benefits for immersion within the game, which will be discussed next in relation to some of gaming's often-ignored components.

The Cutting Room Floor – Overcoming The Little Things

A few other formidable obstacles also prevent games from creating a completely immersive, naturalized game experience: game menus, level loading screens, and heads-up displays (HUD). These extra-diegetic components of videogames often intrude violently upon the game's narrative, breaking whatever sense of immersion developers are able to deliver to the player. These staple conventions of the home video game developed in response to a medium that was able to protract and sustain longer gaming sessions—generally speaking, early game fare was limited to an opening menu screen that usually contained just a “1P/2P start” and the occasional lightly-feature-laden

¹⁷Mark Steven Meadows' *Pause and Effect: The Art of Interactive Narrative* deals with issues of perspective and interactive narrative, and comes highly recommended for further reading.

“options” screen. Several factors contributed to the necessity for in-game menus. Graphics and sound complexity increased, allowing players the option to tweak their graphics settings for their desired frame rate, while increased complexity in controllers and other gaming peripherals created the need for menus so players could micromanage their button definitions. The increased storage capability and length of game narratives on home machines allowed for the “save game” and “quick save” functions to develop. All three of these problems culminate today in a dilemma that many players discover when interacting with a game's resulting menus: a slow swimming within confusing, schizophrenic trees detailing the various options for players to change the game's configuration to their preference, which ultimately shatters any illusion of the player existing within the gestalt of the gamespace.¹⁸ Truly immersive controlling schemes feel natural across a variety of peripherals (controller, mouse, or keyboard), and if executed intelligently, can actually supplant any need for more advanced, immersive peripherals—except for the more obsessive, micro-managing types (of which this author counts himself). Although an opening menu prompting the computer to begin the game experience is usually necessarily, once the player is engaging the game the in-game menus do nothing but break the player's projection into the virtual space and call attention to the artifice of the medium. *Prince of Persia: The Sands of Time* handles this problem exceptionally well, as does *Black and White*. Both games naturalize the game

¹⁸ Many early games utilized password systems that encoded the level/save-point players were located, the number and type of items in the player's inventory, and the amount of lives a player had in their possession. These were encoded into strings of text (letters and sometimes numbers or ASCII symbols) which players could enter into a parser later, allowing for recall of their game – sometimes with minor, accepted variations between the pre-save state and the post-load game state. Some early games also had batteries installed inside the cartridge, like Nintendo's *Legend of Zelda* (1987). The PlayStation ushered in the save cartridge, which stored player data on a removable storage media disk that inserts into the front of the machine.

menus within the context of the game and its narrative, making the menus appear as if they are a natural part of the gamespace and/or narrative delivery.

Prince of Persia frames its narrative in the guise of the Prince recounting the story to his audience, either players themselves or an unseen third party. The game itself plays with the fantastical notions of time, equating it to a sea in which both past, present, and future occur. The game gives the player subjective, “extrasensory” visions that the Prince has when a player activates a save-point, denoted by a golden fount of light. Additionally, since the game is framed in the terms of a recounted oral tale, whenever the player guides the Prince to his doom and reloads the game, the Prince-as-narrator says, “No, that's not how it happened. Let me start again,” foregrounding the fallibility of human memory, as well as the malleability of oral literature. If the Prince is seen falling to his death, then the Prince-as-narrator must have recounted his death to his playing audience—but since oral folklore and stories *are* malleable forms depending on the needs of their audience, it can be assumed that the Prince recounted the death for the sake of audience interest in cliffhangers, whether they actually happened or not in the ultimate arc of the story (i.e., restoring the Sands of Time back to their hourglass). This fallibility of memory is evoked whenever the player hits the button to recall the in-game menu, and it appears superimposed the camera's representation of the gamespace suspended on a murky gray cloud. Molyneaux's *Black and White* naturalizes its menus within the context of the player's temple, where players, upon entering it, can see overview their current game statistics as well of those of their totem creature. The developers both take different approaches in trying to alleviate as many ruptures in the space as possible by

naturalizing these elements within the narrative, or by allowing the narrative to explain their presence within the gamespace itself.

Improving the naturalization of extra-diegetic game elements are steps that developers will certainly have to consider more as they grow comfortable with the medium. Additional elements like loading screens and HUDs need to also be focused on, as these elements are the final remnants preventing developers from creating this seamless narrative experience. The developers of *Call of Duty* naturalized their loading screens into the game/wartime experience, making the screen into a picture of the cloth maps distributed to soldiers during WWII which details the area where the player has been deployed. However, the cloth map floats mystically without a pair of hands grasping it. With the game being a first person shooter, it would make sense to maybe even having the point of view glance downwards at the map, instead of perpendicularly at eye level, to simulate a soldier's having to actually view a map—the display of a pair of hands would have done a lot more in terms of naturalizing the technological necessity and allowing for the disruption of the gamespace to be mended as best as possible with current computer limitations.

Half-Life has a more transparent loading screen, literally functioning like a theater's scrim, and since the game loads its levels in smaller chunks, the waiting times are reduced extensively. The player must still be pulled out of the experience, however the extent to which the illusion of a seamless space is less likely to break due to the extremely fast loading times and the player's ability to still see what is within Gordon Freeman's limited field of vision. The loading screen in *Half-Life* pops up as the engine detects the player as they move between certain points through the level, usually in

bottleneck locations such as hallways. *Half-Life*'s story is a linear one, so the level design works to essentially herd players through the pre-scripted game experience: it's comparable to a MGM Studios attraction, only the participants are armed with weapons and there is a constant threat of being slaughtered by spawning virtual aliens. At various points in each level, the loading screen will pop up briefly and then the player will be allowed to continue their ascent out of the Black Mesa Compound. Players expect longer loading times when they boot up their first save game for the session—this is expected, at least until data storage methods significantly increase to allow for lag-free loading. However, in the future, developers may also want to consider what this could mean in terms of longer missions before the character *has* to change to a new scenic location. Games such as Blue Box's *Fable*, Activision's *Spiderman 2*, and Microsoft's *Dungeon Siege* boast the background loading of their gamespace, optimizing the engine's transparency and helping in sustaining the illusion of a representational virtual space even beyond *Half-Life* or *Call of Duty*'s loading methods—allowing for a virtually seamless diegetic experience, provided the user has little need for menus.

However, one final obstacle currently prevents players from immersing themselves within the narrative experience, as its very nature calls attention to the fact that players are playing a game, and that's the HUD. A game's HUD is responsible for delivering diegetic and extra-diegetic material to the player, generally in terms of concrete, quantifiable units such as ammunition count, the player's hit point status, etc. In game's that attempt to mimic reality, such as *Call of Duty* or *Max Payne*, these HUDs clearly violate the bounds of reality: people don't have hit meters, nor will they generally have a concrete idea of how much ammunition is in their weapon until they hear the “click” of a

gun's hammer striking nothing but air. Furthermore, the use of the first-person camera angle complicates matters, as the HUD is usually superimposed over the player-character's visual field, and most games make no explicit reference as to why there are unexplained figures floating in the player-character's visual field.¹⁹ There are three ways to eliminate this problem: one is by naturalizing the data the player requires within the confines of the game's narrative; the second is by bypassing the requirements of HUD data by creating a game narrative that doesn't require data from a HUD; the third is simply having the game be in a third-person camera format, so the HUD's data is literally located outside of the player-character's visual field.



Figure 7. The protagonist's chest/HUD in *Trespasser*.

Naturalizing HUD data in the context of a narrative can take multiple forms. A science-fiction game, for example, could allow cybernetic implants to be installed that relay this sort of data to the player. *Trespasser*, a game based on the Jurassic Park license, did this by giving its heroine, voiced by Minnie Driver, a tattoo on her chest that players could glance down at in order to attain the current status of her health (Figure 7). However, the problem with *Trespasser* was that it was released in the mid-1990s, when

¹⁹*Max Payne* discusses this in one scene where Max is hallucinating/dreaming while on Valkyr, when in a graphic novel panel, Max recounts seeing weapons statistics hanging above his head.

female gamers were a relatively scarce commodity. Therefore, the game led to rather awkward and uncanny situations, much like Taylor described with Agent Wilmore, as male gamers were having to contemplate their temporary sex change and identify with their new, voluptuous female body. The game was a critical failure, despite its attempted advances with in-game physics and in-game object manipulation. Science-fiction games involving soldier combat could give gamers an eyepiece laid over the action of the game which could relay things like their health status and ammunition count, maybe even a compass readout.²⁰ It would certainly obstruct the player's view, just as such a device would obstruct any soldier's, but the same would happen to any soldier until cybernetic implants allow this information to be directly superimposed over a human's visual perceptions. Casting players in a third-person perspective would alleviate many of these requirements, as no longer are players' visual fields bound to that of the characters they control. Additionally, casting the player in a role where a HUD is irrelevant to the game's narrative is another way to easily bypass this, something that *Broken Sword 3* and *Mysterious Journey II*—both recent examples of adventure games—employed with much success. *Broken Sword's* third-person perspective and emphasis on inventory items and interrogation rather than action and shooting allowed for this, while *MJII's* narrative unfolds through cut-scenes that play after the player-character completes the game's puzzles or in their conversations with NPCs. Both of these stories allow for a player to navigate and explore these stylized environments, but don't bind the player inside the life and death trope of virtual survival—here the emphasis is on character development and

²⁰ *Rainbow Six 3: Raven Shield* (2003) accomplished this by displaying EKG readings instead of the traditional hit point indicator, which is far more appropriate to measure damage to the human body. However, shots taken to a limb do not hinder the use of that limb; rather, they cause less damage than a shot to the torso or head would incur (i.e. the player can take three shots instead of one, as with a headshot).

identification. The same can also be said for other in-game elements such as inventory screens, or game maps. Work needs to be done in naturalizing within the game's context if the player is interacting within a first-person perspective: most first-person shooters still believe that it's realistic for fighters to be able to carry ten or more massive guns, though more recently developed games *are* taking this into account and allowing players to carry only three to four weapons total, as in *Halo* or *Far Cry*. Games like *Grim Fandango* (1998) have naturalized their inventory by cutting to a view of Manny Calavera's coat, and as the player cues him, Manny reaches into his coat and pulls out the next/previous inventory item—sometimes impossibly large items that could never fit inside a coat. If Manny were still alive, this kind of clothing chicanery would be unbelievable; however, in the Land of the Dead almost anything goes, including puzzles that deal with non-continuous, arbitrary spaces. Methods such as this, if employed intelligently by developers in the future, could do their share at mending over the seams of the videogame so that a player is able to suspend his/her disbelief and maintain the illusion of a believable and seamless virtual world.

CHAPTER 2 INTRODUCTION TO THE GAMES AND THE ERASMATRON

The most popular game characters to date have been mostly abstract, cartoon representations, arising primary out of technological limitations, but popular culture's infusion with animation and caricature certainly didn't discourage players from identifying with them: Mario, Sonic, Samus Aran, Lara Croft, Crash Bandicoot, Raziel and Kane, Cloud and Sephiroth, and the list keeps growing. Only recently are realistically represented characters entering the pantheon of endearing video game characters (with the possible exception of early-FMV heroes, Tex Murphy and Christopher “Maverick” Blair), and surely this number will increase now that games are starting to be able to believably render detailed humans: Solid Snake, Sam Fisher, or Max Payne are several recent examples. But because abstract characterizations no longer have to represent real humans with real problems, these characters are able to highlight certain aspects of our human experience and magnify them—through these representations, our imaginations of ourselves can be limitless and more mature games can result as a consequence. Certainly, there will be themes that will be better discussed in terms of realistic representation, such as the Holocaust, the casualties of war—*real* topics that need to be addressed seriously in a medium with as much potential as the videogame.¹

However, until money-minded developers are willing to dredge into these serious topics

¹Though Art Spiegelman's *Maus* does an excellent job at framing the horrors of Nazi Germany in terms of cats and mice, re-living the comic in a videogame wouldn't be nearly as effective. Forcing players to reconcile the horrors of a Nazi concentration camp in a realistically-rendered environment would be far more effective in an immediate, realistic representation, rather than Spiegelman's emphasis on the untold, fascinating history of one man among millions.

without using them simply as a vehicle to shoot the faceless “enemy” mob (as in many combat games, which ignore the finer intricacies of war), there will likely be little development in these terms in the foreseeable future. Adventure game developers, whose devotees typically enjoy a more mature story and slower game experience than nerve-twitch deathmatch offerings, might be the one sphere in which developments such as this may occur sooner rather than later. An article from *Adrenaline Vault* writer Bob Mandel discusses the eventual merging of adventure games with first-person shooters as technology is allowing the required intricacy in the environment of adventure games to finally be rendered in three-dimensions (Mandel, “Convergence”). Since modern adventure games often deal with more adult or historical themes, certainly this seems a likely avenue for developers to pursue, with an appropriate mixture of action, narrative, and interesting puzzles.

Developers should actively consider the notions of unique stylization in their character and level design to facilitate player identification. Careful considerations to whether or not there should be an emphasis on direct manipulation and immediacy, as in first person shooters, or character identification, which is better with the third-person camera (Taylor). UIs also need an upgrade through their naturalization, if possible, and the through the development of complex context-sensitive UIs that give players more control in their manipulation of the gamespace. The employment of a more open-ended level design and mission/narrative structure, along with the methods listed above would hopefully facilitate an eventual collapse of this action/narrative dichotomy. Easier said than done, assuredly, however, the bulk of developers aren't even paying attention to this critical debate, let alone bothering to address it at any length—one reason why story-

mindful developers like Crawford are able to pique people's interest with the promises of his Erasmatron. Unique and innovative interactive narratives will take all the above into consideration and still manage to integrate them into an ingeniously-crafted, cohesive, and immersing narrative experience.

The games that will be discussed next all do their part to advance the cause of innovative narrative delivery, or work towards a collapse of the narrative/action divide through their stylization and naturalization of in-game data, along with other rather ingenious narrative strategies. None of them actually achieve the elusive goal of a full collapse of this divide, though *Uplink: Hacker Elite* manages to sidestep ingeniously the requirements of an engaging narrative by casting the player as a hacker at his/her desktop computer—resulting in a truly originally addictive, frantic, role-playing/immediate experience. These innovative games utilize all the various topics discussed above in different ways to achieve gripping narratives that gamers still find themselves playing long after other titles have lost their luster.

The discussion will conclude with a description of the abilities of Chris Crawford's patent-pending Erasmatron engine and Carnegie Mellon's the Oz Project, two interactive virtual storytelling engines, both with differing goals. Crawford's Erasmatron deals explicitly with creating an interactive narrative process for videogames, while the Oz Project's focus is on creating an ultimate literary text. Both the Oz Project and the Erasmatron promote an open-ended dramatic structure, filled with believable and expressive non-player characters for the player to interact with. The focus will be on the Erasmatron, as its focus is solely on gaming; additionally, the Erasmatron addresses many of the problems inherent in attempting to construct an open-ended narrative and

gamespace within the context of addressing the needs of a game player, and not that of a theater participant.

The critically-acclaimed *Broken Sword 3*, discussed already in detail due to its use of an innovative, relatively transparent context-sensitive UI and its stylized characterization, also does its share to collapse this narrative/action divide by allowing the player to take minor action on the unfolding of the narrative in select parts of the game by reviving a technique from the old laserdisc arcade game, *Dragon's Lair*.

Dragon's Lair was an early arcade game which stored and cued its animated scenes from a laserdisc. The player would watch a scene in which Dirk the Daring would be caught in a life-or-death situation, and within a small, prescribed window of time, the player would have to hit a button sending Dirk in the proper direction as indicated by the screen. If the player missed the window of opportunity to hit the proper key, then a death animation would be cued from the laserdisc and the player would then have to wait through the loop for another opportunity to strike the button—after losing a life, of course. *Broken Sword 3* revives this tradition, though unlike *Dragon's Lair's* interactivity being solely the player's choice for Dirk, *BS3* allows for the player to interact with the entire gamespace except *in* its narrative sequences or interrogation sequences—but even *Broken Sword* allows for the player to interact with the unfolding of its narrative, even if it's only pressing *a* key. There aren't many of these interactive sequences in the game, but they prevent players from assuming a passive reception of the narrative as it unfolds, as players never quite know when their fingers will be required to hit a button in the UI. During narrative sequences, the UI traditionally disappears, but in the interactive sequences it reappears briefly before vanishing, cueing either the sequence's victory or

death sequence. In the event that the player doesn't catch the UI popping up the first time, the preceding narrative sequence simply loops around to the beginning and gives the player another chance to send the franchise's long-standing protagonists, George Stobbard and Nico Collard, on through the sequence.



Figure 8. Nico Collard from *BS3* being held at gunpoint in one of the game's interactive narrative sequences.

In one instance, Nico is being held at gunpoint (Figure 8), and a successful press of the key at the proper time allows her to pick up a frying pan and smash the assassin in the face, while the death animation has Nico getting shot (which obviously cannot happen, as she is the endearing female half of the *Broken Sword* duo). *BS3*'s allowance for intrusion upon the narrative is minimal. It is, however, a good place to start in allowing developers to open up their narrative beyond simple, traditional passive reception.

A number of games have recently allowed their players to interact with the engine while narrative is being delivered to them, communicated by NPCs or unfolding in the level around them. One of the first games to allow for this on the personal computer, especially among the more recent crop of first-person shooters (whose division between action and narrative outside of *Half-Life* has been especially pronounced), was Clive Barker's *Undying* (2001)—unarguably one of the creepiest game experiences to date.

Undying allowed players, after they had approached and activated an NPC with their use key, to move the mouse around while the NPC talked to the player-character. The player-character's feet were unable to move, but this game was developed during a time when total control was nearly always taken out of the player's hands while the game delivered its narrative—so *Undying* should not be discarded in serious conversation when discussed in relation with more recent fare like *Uru: Ages Beyond Myst*, which allows the player freeform movement throughout virtually all parts of the game's narrative.

Uru, like every other Rand and Robyn Miller *Myst* title, starts the player off in a scenario where they are not privy as to why their player-character is where they are—this is a feature intrinsic to the series, where the player-character's motivations must be discovered by the player as they advance through the narrative and the gamespace. The game allows for the player to build a custom avatar, choosing from a small variety of clothing, hairstyles, and other accessories. This allows for an instant identification, ideally, of the player with their avatar, provided they attempt to build one that looks similar to himself/herself. Additionally, the game also assumes an over-the-shoulder, third-person perspective, which allows for almost any seams in the narrative gamespace to be covered naturally by the objective perspective the developers utilized—but *Uru* *does* allow for the player to assume a first-person perspective, if they desire, which then allows for the player to insert himself/herself within the gamespace. *Uru's* user-interface has all but vanished, reduced to a mouse pointer that changes only when it hovers over an interactive object or NPC—it is simplistic, but ultimately effective. As the player interacts or approaches the game's NPCs, the NPCs launch into a non-interactive monologue that the player can either listen to or, as is more the case for the impatient

gamer, run off and interact with other objects in the environment. The opening puzzle for *Uru* contains enough puzzle pieces scattered and hidden across the first level to give players enough to scavenge for and interact with and also facilitates the player in becoming comfortable with *Uru's* control scheme before progressing to more difficult puzzles.² Similarly, developers of first-person shooters and other games are starting to allow players freeform movement through their levels and scripted narrative sequences, such as *Medal of Honor* (1999) and *Call of Duty*, realizing that doing such lends a sense of immediacy within the gamespace and also helps to facilitate the player's suspension of disbelief as he/she plays the game.

Some games, due to the naturalization of certain vehicles for narrative, are able to simultaneously deliver both story and plot to the players while they interact with the gamespace. One game that has achieved this with much success is Irrational Games' *System Shock 2*, still critically acclaimed as one of the most engaging, immersive, and horrifying experiences ever encountered on the computer—even five years later, and with graphics that were initially considered sub-par.³ Its inventive use of sound, diegetic and extra-diegetic, and its stylized graphics were what catapulted this game into the annals gaming history. Ultimately, *SS2* was received with only lukewarm sales from gamers, though it went on to receive high marks from nearly every gaming publication, as well as winning numerous awards for innovative game design. Even so, it still demands a large

²*Uru's* opening puzzle is finding small tapestries, each representing part of a hand. Upon finding them, each finger, or part of the palm, lights up. After finding all seven pieces, a tree trunk opens to the game's hub level, which allows access to the four ages in *Uru*. The four ages can be visited in any order.

³One exceptional difference between personal computer and console systems at the moment is the personal computer's ability to supplement gaming content in the form of user-created modifications, or “mods.” *System Shock 2's* initially blocky graphics, through a series of user mods, have been replaced with even more horrifyingly detailed models and textures, resulting in an even scarier experience. This doesn't, however, make the game in its unaltered state any less terrifying.

cult following on the Internet, where its devotees are still clamoring for a sequel to be produced—especially after the game's cliffhanger ending.

SS2 casts the player as a new recruit to the Von Braun, a ship built by the all-powerful Tri-Optimum Corporation. Before the player departs for the Von Braun's maiden voyage, he/she must train for three years in one of three branches of service: the Marines for weapons training, the Navy for hacking and repair training, or the OSA for training in psionic-operations. No matter what branch the player chooses, between the time of their training and the time he/she awakens on the Von Braun, they are outfitted with a series of cybernetic enhancements that allow for a host of improvements—including the ability to receive audio streams inside the brain from outside contacts and through data logs activated at the player's leisure.⁴ These cybernetic enhancements naturalize the extensive number of audio transmissions from Shodan and the Xerxes mainframe. The game's audio logs, recovered on disks left around the ship by the Von Braun's dead crew, give the player unique insight into the personalities and motivations behind the game's characters, and oftentimes there are hints in the levels as to many of their fates.

The audio logs, and stories recounted by several apparitions that haunt various sectors of the ship, give the player the insight into the game's story, while communications and mission information (i.e., the plot and narrative trajectory) are either logically deduced by the player-character, or given to the player by the Dr. Polito/Shodan

⁴The training unfolds over three sessions, in which the player chooses missions that add points to certain elements of their character: weapon repair, cyber-affinity, hacking, agility, etc. There's no mission, per se, as the player is merely debriefed with the occurrences of the past year in a text message. The game itself actually cuts from the debriefing message of the final training session and into the CGI sequence of the player's cryogenics tank malfunctioning during the player's memory regeneration sequence.

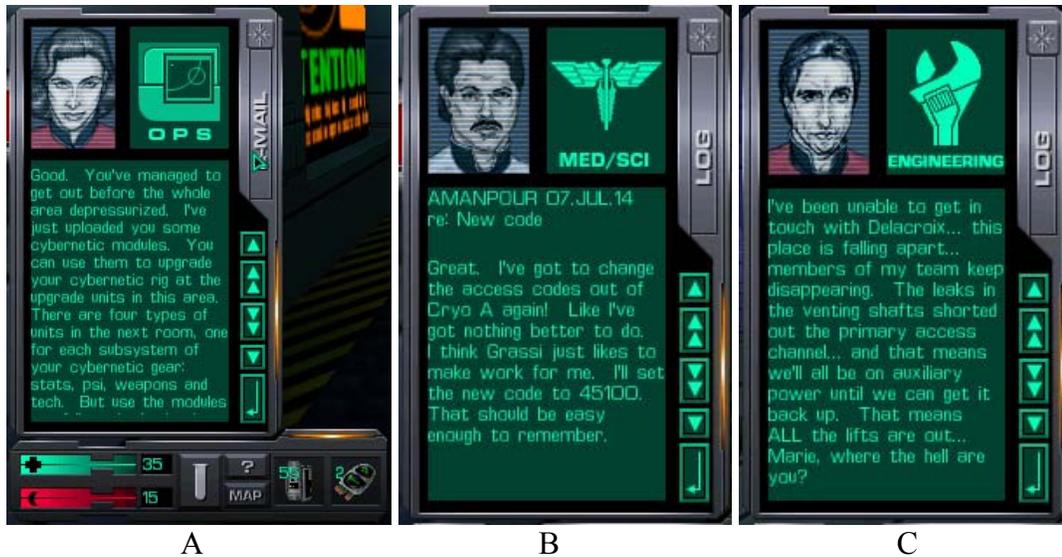


Figure 9. Various audio logs delivered to the player-character in *SS2*. A) Dr. Polito congratulates the player for escaping from a depressurizing sector of the ship. B) *SS2*'s Amanpour recounts a door's passcode in an audio log. C) A member of the Von Braun discusses happenings on the ship and in Engineering.

personality in objective-based segments (Figures 9-A, 9-B, 9-C).⁵ Through the audio disks, the player receives intimate details of the various daily goings-on of the crew before they fell susceptible to the annelid-virus hybrid—in all its horrifying depth. In some cases, the recordings of the sturdy Captain William Diego's and others' descent into madness and the annelid hive mind are almost enough to induce the same symptoms of dementia in the player. The doubling and combination of perception through the naturalization technique of the cybernetic implants implies that the player should fear for his/her own sanity—the annelid goo is smattered all over the levels, and infection always seems to be an all-too-likely possibility for the player-character since the entire crew has fallen to its deadly effects. The voice recordings are also, literally, disembodied voices in the player's head copied there by disk: technologically-induced schizophrenia, essentially. There's a lot the player should be worried about, and *SS2*'s method of delivery is ideally

⁵The player discovers at one point in the game that Shodan, the evil rogue AI, had been faking Dr. Polito's voice to get the player to do what she wished of him/her.

suited to deliver the sense of loneliness, paranoia, fear, and terror that this title demanded and evoked by science-fiction films like Ridley Scott's *Alien* or John Carpenter's *The Thing*—mixed with a healthy dose of an organic Borg.

Additionally, while players are being forced to encounter the descent of many of the crew into the annelid hive mind, they are virtually always at the mercy of enemy robots, surveillance cameras, security drones, and *before* the game's patch, randomly spawning enemies—players are never, *ever* safe. The ingenious use of sound in *SS2* is still virtually unmatched by more modern games. Even with the now-primitive usage of Creative Labs' Soundblaster EAX support, the sounds echoing down the halls of the deserted ship are meant to frighten the player with its realistic-sounding, echoing, scratchy-voiced calls to “silence the discord” and “remnants of the flesh.”⁶ The voices and appearances of apparitions endow the game with a supernatural/sci-fi feel, and they show players firsthand echoes of the last moments of the lives of NPCs with whom the players have grown accustomed to through voice logs. There *are* moments where the player is unable to interact with the gamespace while narrative unfolds, but these are very few in proportion with the remainder of the game's narrative delivery. Due to everyone's exposure to and eventual “death” from the virus, the clear good/evil dichotomy forces the player into a scenario to where there is no *real* interaction that's possible: there isn't anyone alive left to tell the tale at first, except for Shodan/Dr. Polito, and the couple who escapes in the endgame. The audio logs and transmissions received from Shodan clearly put the player in a position of solitude, and with only the ability to follow what Shodan

⁶EAX was the first major drive by Creative Labs to create a sound processor capable of simulating the realistic reverb and delay effects that different sizes/shapes/materials have on bouncing sound waves. EAX 3.0 now allows for a smooth morphing between different environments, and a host of other improvements.

says if they want to get out alive. It's an interesting loophole for the developers to exploit in order to disallow any real interaction with the narrative. However, *SS2*'s ingenious naturalized delivery of plot and story and its stylistic, abstracted character modeling and portraiture allowed for greater immersion into the game's unique narrative delivery and the futuristically-stale gamespace. Its creepy, (unfortunately) linear ending involves one of the couples that the player became familiar with over many audio logs as they tried to find each other from different parts of the Von Braun: they're reunited, for better or worse, and the ending leaves the story open for an as-of-yet-undelivered sequel. Even though *SS2*'s endgame scenario may have only allowed for one potential outcome, the rest of its narrative delivery successfully allowed developers to maintain control over the narrative, but also made the engagement of many parts of it strictly voluntary with the use of the audio disks.⁷

Much has already been said above about *The Last Express*, but it's certainly a game that still fits within the context of this discussion and deserves a look in terms of how Mechner achieves this collapse of action and narrative. Similar to *System Shock 2* in its naturalization of its unique delivery of story and plot, *The Last Express* places the player in the shoes of Robert Cath, who discovers his good friend Tyler Whitney's body dead inside the cabin the two were supposed to share. As Cath attempts to figure out who killed Whitney and why, he eavesdrops on the numerous conversations of the passengers on the Orient Express, and these conversations, as well as diary entries and personal correspondence, relays the backstories of the various NPCs to the player. The emphasis on eavesdropping rather than direct conversation allows the player to choose whether or

⁷Many audio disks also contain clues, so players are generally encouraged to listen to them at their convenience (i.e. when annelid zombies or psionic monkeys are not actively hunting down the player).

not he/she even want to bother listening to the conversation, giving them the option to peruse other parts of the train, explore compartments, or sleep. Additionally, Mechner displays a remarkable skill for naturalizing the use of languages in the game: any language that Cath can understand (English, French, German, and spoken Russian) will have the conversation translated at the bottom of the screen. Languages like Arabic or Albanian remain untranslated for players, unless they are able to comprehend it themselves. This stands in contrast to many games, like id Software's *Return to Castle Wolfenstein*, where NPCs are remarkably able to speak English through a thick accent of their native tongue—which ultimately breaks the illusion of verisimilitude the developers labor to create.⁸

The Last Express is rather open-ended, as players, for the most part, are able to traverse the various compartments of the train as they wish. However, certain key opportunities, such as breaking into Kronos' private sanctum to steal his briefcase filled with gold coins during Anna Wolff's concert, are only available within certain windows of time. The paths of the NPCs, however, are for the most part hard-coded into the narrative and the coding: the concert will *always* start at 3:00pm, and the guest list will always be the same, with everyone sitting in their identical seats.⁹ Cath, however, is free to remain at the concert so long as the player desires, but staying there the entire concert will preclude any chance of him reaching Constantinople, as Cath misses his opportunity

⁸Other combat shooters that have taken place in WWII, like *Medal of Honor*, *Call of Duty*, and in *Battlefield 1942*'s voice communications, do not translate the speech of enemy opposition either, lending to a heightened sense of immediacy and immersion within the gamespace.

⁹Sometimes there may be variability in how an NPC moves about the train based upon Cath's walking into a particular car within a *range* of time, as when Kronos asks Anna Wolff to play a duet with him.

to steal Kronos' gold and Tatiana's Firebird egg, which the player then must hide from Kronos' cynophobic assassin, Kahina.

The Last Express has a number possible endgame scenarios, and all are rather ingeniously executed and display a remarkable amount of foresight from Mechner and his team. Many of the endgame scenarios can be reached by not having adequate amounts of foresight in dealing with certain passengers: for example, when the player must intercept the conductor before he makes Cath's bed, especially if Tyler Whitney's corpse is strapped to it. Failure to ward off the conductor in this scenario leads to a call to the police. Also, should Cath exchange the Firebird egg for Kronos' suitcase of gold, then the game ends with Cath sipping coffee in a Viennese cafe. It's not a bad endgame necessarily and it is possibly the *best* endgame scenario as far as the deaths of various NPCs, but it is not the *final* outcome. Cath is a man determined to solve the murder of his friend Tyler, and we are meant to believe his sincerity when he pledges such to Anna Wolff. Therefore it only be assumed that the game should continue further, and this is made evident by numerous allusions in dialogue and train schedules to the train's terminus in Constantinople, as well being spatially and graphically denoted on the game's map/loading screen. And while strategy guides and walkthroughs may aid a player through the game, some of the variables to achieve the final endgame scenario are so arbitrary in some cases that it would understandable for the bulk of players to become frustrated with the type of narrative experience *The Last Express* offers. Making sure that the Firebird and its scarab whistle are on the same car when Cath detaches the passenger cars from the Orient Express' locomotive is one example in which failure to do so affects the player's ability to achieve the endgame narrative farther down the tracks, so

to speak. However, it is this open-endedness and forethought to the narrative that has made *The Last Express* the enduring classic it has become among scholars and game enthusiasts. On the road to achieving interactive storytelling, *The Last Express* will mark one of the first watermarks ever attempted towards that elusive goal.

Strategy First's *Uplink: Hacker Elite* manages to collapse the action/narrative dichotomy in a rather unique way by bypassing the demands of transparency, identification, and engagement by directly casting the player as a hacker at his/her desktop computer. The game, in many ways, hails back to Infocom's genre of Interactive Fiction, in its reliance on text over graphics—the only graphics being utilities on the desktop interface, and faces stored in the files on databases the player comes across. In *Uplink*, the player/hacker/agent works for a company called Uplink, a computer firm with agents scattered across the globe and facilitating the need for a complex mainframe system. From their individual computer desktops, Uplink agents load a software package and dial into their personal gateway at Uplink Headquarters, from which they interact with the Internet (the shortcut into the program from the player's OS marks the loading of the Uplink software interface). Therefore, since the player is interfacing through a UI integrated into a software package that is patched through a remote gateway, the immediacy of the player increases immensely as essentially the demands of the player's *own* computer for carrying out this work are then bypassed: the player's computer is merely relaying input to the Uplink gateway, which contains the computing processing power at a remote location. The tools the player uses to crack the various systems mimic their real life counterparts in many cases: IP viewing utilities, trace trackers, log deleters, bypass utilities. In fact, upon perusing the *Uplink* message boards, one gamer said that

the game itself is very realistic in what hackers must actually consider in carrying out their hacks, but that only “script kiddies” would use the graphical tools that a game like *Uplink* fictionalizes.¹⁰ Additionally, the gateway and its components can be upgraded with a host of options, including numerous parallel processors, memory banks, security enhancements, and increases in bandwidth: all of which have an outcome depending on the speed at which the player's computer is able to copy, delete, and crack files as they bounce their paths around the Internet.



Figure 10. Various Windows XP icons used in an *Uplink* user modification.

The use of player-created modifications allows for an even greater customization of the user experience. Two widely popular mods allow for a near total collapse between *Uplink*'s fictional space and the player's reality. One modification alters the game UI to resemble that of a Windows XP system, where all the various icons, noises, and buttons are transported from Windows XP and mapped onto the *Uplink* virtual desktop (Figure 9). Another mod allows for the importing of the names of numerous companies one finds in the Fortune 500 and videogame magazines today, from Opera and Adobe to

¹⁰“Script kiddies” is a derogatory term for those that who use graphical or streamlined tools to augment their attempts to crack servers. However, in a videogame, real hacking would likely bore the tears out of anyone without a detailed pre-existing knowledge of hacking, with lots of command line interfaces and other such devices (*Uplink* features some command line interfacing, but its limited). Therefore, the game skirts a fine line between reality (in the ways in which the player has to hack systems) and fiction (in their marginal graphically-represented way).

Valve and Activision. The introduction of these real companies into the game allow for some interesting missions, as *Uplink* randomly generates its missions for players, which they then select from a list in *Uplink*'s mission database. One mission was almost art imitating life: I was asked by Adobe Corp. to hack into Valve's computers and steal the source code for one of their unnamed programs. In real life, Valve had to delay the release of their hyped upcoming game, *Half-Life 2*, because a hacker had broken into their mainframe and stolen the source code for *HL2*, and the story ultimately became a huge media event in the gaming press. Many such missions occur with *Uplink*'s random mission generator, weaving an interesting, never-ending picture of corporate corruption, backstabbing, and deceit as the player is hired to ruin and frame people (it is even possible to add people the player knows into the databases to be potential victims), steal money from bank accounts, give people criminal records, or falsify academic credentials. The bulk of the game comes in the form of these random hacking jobs, and only after a month of training and hacking (in game time) does the player receive an email as to the game's primary storyline—though new narratives can be downloaded, as well. The linear and non-granular nature of asynchronous communication like email is naturalized in *Uplink*, much like *System Shock 2*'s use of audio logs, as the game's random missions allow for players to hack until infinity and read about the damage they have wrought on the *Uplink* news board. The only real goal in the game, other than dealing with the Revelation virus plotline, is to accumulate wealth by completing missions, successfully evade the authorities by covering up the evidence of the hacks, and survive long enough to upgrade the gateway and its components.¹¹ For those wanting to pursue a life of

¹¹The game's plot line unfolds in a relatively small series of emails, as the bulk of the game's "narrative" material is the randomly generated missions. The bulk of the activity surrounding the Revelation plot line

fictitious virtual hacking, the ability to download new gateways, new companies, new people, and new narratives to the game are available for download from several *Uplink* fan sites on the Internet.

Other than the negligible time displacement and a naïve assumption of a UN global takeover (though it allows for the employ of centralized Global Criminal and Academic Databases), the worlds between player and player-character are essentially collapsed, save for a small time differential and the added ability to fast-forward the actual game time.¹² *Uplink's* unique delivery style and its naturalization of the role of the gamer as hacker literally inserts the player into the dramatic arc of the story, but the game's steep learning curve easily scares off those without at least a marginal interest in hacking and cracking. The game is comprised of nothing more than writing down IP addresses, queuing up the proper programs to carry out the hacking job, and then clicking on the various target systems. However, the thrills of evading vigilant system administrators and their hack traces in order to avoid heavy fines, gateway confiscation, or jail time border on the same thrills that bungee jumpers seek jumping out of airplanes. The “beep-beep-beep” of the hack trace provides an immediacy of fear that no other mediated simulation can provide, as the game's unique method to achieve virtually total transparency immerses the player inside the web of corporate deceit and life-and-death decision-making. Additionally, once the player is caught, without the proper utility to archive the player-character, the *Uplink* account is permanently suspended and the player

involves the player planning the hack itself, much like a bank robber plans a heist. Small mistakes, though occasionally allowed, eat away at the hack trace that system administrators run in response to a player's hack attempt – and should be avoided.

¹²The player would fast forward time if waiting to look for a story of their hack to make the news, to pass the time waiting for upgrades to be installed, or to queue up new missions as they become available from the *Uplink* mainframe. Otherwise, fast-forwarding serves no real function.

must assume a new identity—allowing for a sense that this type of extreme and illegal behavior has *serious* consequences, for the player-character and for the player himself/herself.¹³ This player-character “death” does its best by completely removing access to the player's character and their assets (though I have never personally tried to hack the bank accounts of an inactive player account), to best simulate the lonely solitude of jail time. Therefore, the player must then craft a new persona through which to engage the game, and must start again from the ground up and with the lowest-end gateway and system software. It's an effective tool in making sure that the player/player-character does not repeat the same mistake a second time—and sometimes the effects are not immediate, as some administrators take time to trace and research the hack and contact the authorities: one reason deleting all the player logs off of the InterNIC machine in the game is a critical and essential strategy players must employ *every* hack, unless they wish to wind up behind bars.

The game can be a frustrating experience for those do not label themselves “computer savvy,” but *Uplink's* infinite, random database, its naturalized large granularity through asynchronous communication, and its immediacy by merging the gamespace with the user's space, sets it apart as a game that ingeniously bypasses many of the requirements for an entertaining, interactive, narrative experience. Though the narrative of corporate ruin and deceit is not engaged unless the player desires by reading the Uplink news and by imagining closed-door meetings and dark, shadowy figures and CEOs announcing the need to take out their rival's data and ruin their lives, then there isn't much in the game to grasp onto as a player in this collapsed experience: there's no

¹³The player actually loses any further ability to play as their character and loses all of their gear and software, which can result in the loss of hundreds of thousands of credits.

VRML or pretty 3D graphics, it's just a desktop. However, *Uplink*'s vision is a seductive one indeed, and one that certainly seems probable in light of recent corporate and accounting scandals that the news media cover on a regular basis. The employment of a desktop UI thrusts players into the narrative of the game, making it conceivable that *they* could, indeed, be working for a hacking firm and to participate in the dark underbelly of the Internet, politics, and finance. Even though *Uplink* fails in many ways to provide to provide a truly engaging and interactive narrative, it must be kept in mind that what *Uplink* offers isn't a narrative necessarily, but a *job* with tasks to complete and some deadlines to meet. It ingeniously sidesteps the requirements of what can necessarily be called a videogame, but it's a title that was produced on a shoestring budget that still manages to draw a small, but dedicated, legion of fans years after its release. The player's job, however, has the potential to net the player millions of credits (with relative ease) and the imagined riches and fame amongst his fellow virtual cyberhackers—with no pesky real-life prison sentences should the player actually get caught hacking Interplay or Activision.

The reason why games have not overcome this action/narrative dichotomy is that developers have, as of yet, to try and develop engines that are able to generate their own narrative processes spontaneously—*Uplink* attempts to provide this behind an illusory veil, but ultimately there's no real narrative: there's just news templates that the player reads, pre-generated IRC chat sessions, and template-based missions. Because most developers have a thorough grounding in the sciences and not the humanities, very few actually stop to consider that the dynamic, creative arts of the humanities don't typically lend themselves well to the cold, calculating math and sciences that many developers

pursue in their educational track (Crawford, *Interactive Design* 331). As a result, the narrative in videogame texts can often be stale, redundant, unimaginative, or clichéd, as the developers focus on the data and coding of the narrative into the engine, but not necessarily in understanding the narrative process itself. Chris Crawford and his patent-pending Erasmatron engine hope to accomplish in realizing a truly interactive, dynamic narrative process for videogames. Across a number of essays and books, Crawford has demonstrated his understanding of the Holy Grail developers have been seeking for years: a truly interactive, digital storytelling process. . If Crawford's interactive storytelling technology, and the developers contracting it, took into account several of the points raised in this paper, it is possible that a smoother and more cohesive narrative process could result: one that allowed for players to make open-ended and dramatically-interesting choices, as well as sustain immersion within that world by accounting for, and appropriately covering over, any possible seams that may result in the game's presentation. In doing so, this could help provide a more immersive and engaging interactive storytelling experience, and one, potentially, that gamers would additionally remember as fondly as they currently do with titles such as *System Shock 2* or *The Last Express*.

Across a series of books, essays, and the Erasmatron website, it becomes obvious that Chris Crawford has become disillusioned with the videogame development process. While he has been focusing on developing a piece of technology meant to facilitate the creation of an interactive narrative process, the bulk of other developers are adding the newest graphics “shader” to their game, or the newest in “ragdoll physics”—which are important developments in the growth of the medium, but they are not ultimately

necessary for the creation of a consistent, interesting world worth interacting with.

Games with more elementary graphics with gripping narratives have engaged gamers just as well as the newest ones with the best graphics that have less of an emphasis on the storytelling process—so what's the rush?

Crawford's technology looks especially promising when elements are compared to another counterpart at Carnegie Mellon University and their Oz Project, an interactive drama project that shares a few elements with Crawford's virtual equivalent. The Oz Project was an interactive drama project conceived of at Carnegie Mellon University and which consists of a textual system and an animated system. The textual component involves interacting with the system with text and receiving textual outputs from the computer, while the animated system is the three-dimensional graphic equivalent. Where the Oz Project is in pursuit of interactive dramas that can ultimately be translated effectively to paper as literature, Crawford's Erasmatron engine is clearly for the construction of videogame worlds. Archived at the Carnegie Mellon Oz Project website are a series of essays and theses regarding the Oz Project while it was still in existence; scholars involved with the project have carried it on to other universities and are still doing research into other possibilities. The primary work regarding the Oz Project is that of Michael Mateas' Master's thesis on behavioral and expressive AI and the *Façade* interactive drama. In his work, Mateas lists the dramaturgical components of "Drama = Character + Story." This ages-old, and certainly over-simplified for the sake of code-crunching, equation can be applied to virtually all dramatically interesting pieces of art, from ancient theater to videogames. Discussing ideas set forth from Brenda Laurel's

Towards the Design of a Computer-Based Interactive Fantasy System, Mateas lists the following table, recreated below:

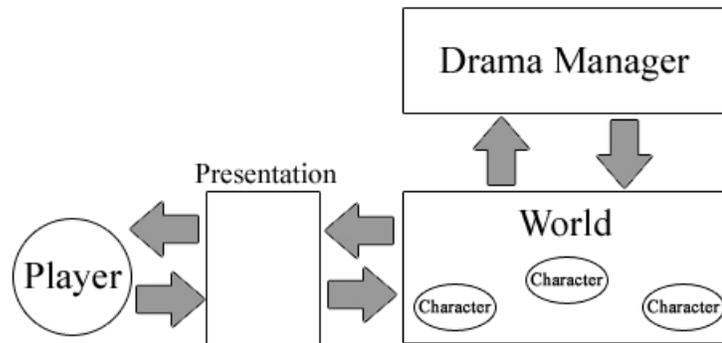


Figure 11. A flowchart detailing the function of the Oz Project.

In this table, it becomes obvious that gameplay elements are ignored and that character, story and setting are treated as *the* important components to the whole dramatic process, even though it can be a rendered, interactive experience depending on user preference. As Mateas describes the interactive process with the Oz Project:

The simulated world contains believable agents, autonomous characters exhibiting rich personalities, emotion, social behavior, motivations and goals.

The user interacts with this world through the presentation. This presentation may perform active dramatic filtering—effecting camera angles and point of view in graphical worlds, or changing the style of language used in textual worlds.

The drama manager can see everything happening in the world. It tries to guide the experience of the user in order to make a story happen. This may involve such actions as changing the physical world model, inducing characters to pursue a course of action, adding or deleting characters, etc. (Mateas 18).

These components share many similarities with videogames, obviously, with the game's engine acting as the manager of the experience and as the presentation, in many ways (for example, the switch to *JK2*'s lightsaber camera is handled by the game's engine, yet the player is able to look around with the mouse and affect limited movement with the omnipresent over-the-shoulder camera). If there wasn't such an emphasis on

producing a literary text at the end of the interactive drama's output, it would seem that the goals of the Oz Project and those of interactive storytelling proponents for videogames are very similar. The Oz Project implicitly recognizes, much like Crawford's Erasmatron, the demands of the dramaturgical and character identification processes, as well as the need for the interactor/player to engage in interesting, dramatic choices with other participants, real or virtual. The interactor in the Oz Project assumes the first-person perspective and interacts with a host of characters, programmed with behavioral and expressive AI. Mateas lists the characters in the Oz Project as what he terms "believable agents." These agents must not necessarily strive to be realistic, but must merely "[engage] in internally consistent, lifelike and readable behavior in such a manner as to support an audience in suspending disbelief and entering the internal world of the character" (Mateas 19). Here, once again, consistency and believability is key, not necessarily an accurate simulation of realism. Mateas describes how characters are "*artistic abstractions* of people, whose behavior, motivations, and internal life have been simplified and exaggerated in just such a way as to engage the audience in the artist's vision" (19). Mateas highlights the need for character abstraction here, and talks of how complex characterizations are reduced to merely abstract stylizations, much like the characters mentioned earlier in this thesis. Through these simplified amplifications, we are able to magnify elements of the human condition for our own exploration and videogames, unlike most media before it, promises unheralded interactivity into these explorations.

Mateas lists what the Oz Project considered important points in character believability in these interactive worlds: personality (all facets of a character), emotion,

self-motivation, change, social relationships, and the illusion of life (19). Stripped of any narrative, *The Sims* fits this definition well: characters have emotions (for the short-term), interact with people, have motivations like hunger and the need to use the restroom, etc. However, *The Sims* ultimately has no plot, drama or emotional depth, and the game's only story is for the Sims to climb the social ladder at their job, regulate their desire meters, meet new people, and accumulate wealth and stuff in their home. Outside of *The Sims*, few NPCs are endowed with the ability to possess ulterior agendas that they actively pursue—most simply wait around for their destiny to meet (or kill) the player-character, even when their agendas are hard-coded like in *The Last Express*, though Mechner provides a thinly veiled illusion to the contrary in the actions of its NPCs.

This is an issue that Crawford's Erasmatron addresses fully. The Erasmatron game engine and comprehensive software development kit (SDK) gives developers the tools they need to pay attention to and manage the essential components of drama: settings, a plot, and motivated characters. Though there are no examples to cite of the technology working to augment an actual game, descriptions make it sound like *Quake 3-meets-The-Sims-meets-GTA3*, with a good dose of dramatic license and detailed, branching dialogue trees (to constrain player action). Crawford's abstract for the Erasmatron says that the engine executes a “seed story” (or main trajectory or story arc) that is set to execute specific substories at developer-specified times and that “plan data representing the plan is stored in the plan list” (Crawford, “Patent”). This plan data consists of smaller substories that users can engage, and their reaction to these substories can trigger even smaller reaction substories. The user is typically shown which substory or reaction substory they engaged through a movie or narrative clip. This clip cues players as to

which of their actions led to the new branch of the narrative so that in the future, they can repeat the results of the story. An important requirement that scholar Paul Wolf notes when he says “different sets of actions and consequences are available to the same player-character and can be experienced on a subsequent playing of the game” (109).

Crawford's Erasmatron capably handles the following abstracted elements of a story: *actors*, including their active/inactive status, location, and numerous behavioral variables; *verbs*, or the actions actors may execute, as well as the appropriate durations for their actions; *stages*, or bare environments where actors can interact with props and other actors; *events*, any action taken by an actor; and *props*, or the objects with which actors are able to interact (Crawford, “Interactive” 265-6).¹⁴ All of these elements are the basic requirements for *any* story or dramatically-interesting choice to occur, and Crawford's nearly open-ended implementation of these elements look very promising.

In his chapter titled “Interactive Storytelling,” Crawford mentions the need for developers to consider the grander principles, the abstractions, of storytelling (Crawford, *Interactive Design* 341). *Romeo and Juliet* remains no longer a story between two specific lovers, but a story about the tension between love and social obligation. This grander truism can be applied far more readily to a wide array of situations that many people can empathize with. With this philosophy in mind, the Erasmatron merely sets up situations on stages, with characters and props, and lets players work their way through the situation with other actors/NPCs. The Erasmatron handles character interaction and the surrounding environment intelligently, as developers are able to specify whether or

¹⁴“Bare” doesn't necessarily mean, “having no effect on the narrative.” Crawford provides an example of a character's hay fever contributing to the narrative, and then the developer could program pollen densities for each stage.

not certain rooms are important to the narrative outcome by specifying a character or place's "territoriality" rating—for example, a bar would draw more actors to it than a garbage dump. Additionally, knowledge of the player-character's actions initially remain constrained to participants or witnesses of the action, and slowly is able to extend outwards to become the general knowledge of other actors and participants in the gamespace through rumors, gossip, and even *lies*. As Crawford states, though, "the propensity to divulge such information depends on a number of factors.... An actor's intrinsic Loquacity plays a large role, as does his Affection and Trust in the interlocutor" (*Interactive Design* 267). The Erasmatron can also handle a number of other specific variables about each game actor, including whether or not events are lies or meant to be kept secret (a murder, perhaps), variables such as trust, commitment, obligation to particular characters through kinship or friendship, moods (anger, joy, etc.), and a number of other states including an actor's strength, agility, cleverness, wealth, temper, sexiness, libido, greed, competence, dominance, and gullibility—ultimately what becomes a *wide* range of variables and dramatic experience available for virtual interaction with NPCs (Crawford, "New Personality"). Indeed, characters are able to gossip to one another about various happenings witnessed inside the gamespace, and it only becomes a matter of time before the narrative's whole cast could be informed about the player's actions.¹⁵ The implications of the Erasmatron in a gamespace like *Grand Theft Auto 3* become instantly attractive as to interactive storytelling's promises. Imagine word of the player's deeds of mass murder echoing through the streets of Liberty City as he/she slowly ascends the crime hierarchy. The player's cunning ruthlessness in handling

¹⁵Blue Box's upcoming *Fable* has a reputation system that will supposedly affect NPC interaction with the player's avatar.

business affairs, speaking with bullets and not words, become the whispered recollections of NPCs in subway stations and the commentators on the nightly news. Perhaps as the player-character walked down the street later in the game, gang-bangers and mafiosos might open fire while civilians would run the other way screaming from a distance, having just seen the player-character's face broadcast on the nightly news. In *GTA3*, the developers code a universal animosity between the different groups as the player progresses through the game. After the player angers the Triads or the Mafia, then no amount of effort can win back their trust unless it is hard-coded into the game's narrative trajectory—the player is simply a wanted or hated man by the whole group, when it seems that there would be gang-bangers who may be willing to talk to the player, despite what the rest of the group thinks. One would think that to be able to affect this relationship dynamically and without the necessity to specifically code for these types of interactions in the game development process itself would be of great interest to innovative developers at some point in the future—however, at the moment Crawford admits that interest in his engine has been virtually nonexistent.

Both the Oz Project and the Erasmatron subscribe to the popular laws of drama.

The Oz Project implicitly recognizes the importance of the classical storytelling structure:

At the beginning, during the exposition, the tension rises slowly as the audience learns the background of the story. An inciting incident then sparks the story, leading to a rapid rise in tension, eventually building to a climax. During the climax, questions are answered and tensions resolved. After the climax, the tension falls rapidly as the world depicted in the story returns to a new status quo. The experience of a story thus has a global shape; events don't happen in a willy-nilly fashion (Mateas 20).

Whereas these are the main assumptions adopted by the Oz Project's drama managing component, the Erasmatron recognizes the importance of dramatic structure but also the needs of developers to alter the underlying structure to suit their own needs.

If they choose, developers can stick to a traditional dramatic structure in an Erasmatron title's plan list, though they are also free to stick to a more free-form, looser dramatic structure, if they so choose. As Crawford notes, "These laws do not supercede the universal laws built into the Erasmatron storytelling engine; the Erasmatron's laws are designed to leave undefined a great many matters that are in the purview of the storybuilder" ("Interactive" 268). And though the Oz Project's interest lay within producing a quality literary text, videogame developers need not concern themselves with dramatic structure *proper*, though clinging loosely to *some* sort of buildup of the plot with an eventual resolution is expected. To use *GTA3* as a hypothetical example due to its successful development of a relatively open-ended world structure: the game itself has a main story arc that the player must participate in to achieve the endgame cut-scene, but imagine if the story could still extend beyond this endgame narrative. A wounded citizen from the beginning of the player's interactions with the game may become inspired by his/her hatred of the player-character to run for mayor and crack down on crime, or the ruthless Yakuza could begin buying up property and expanding their foothold on Liberty City's crime world—possibly provoking massive gang riots and the bringing down of the hammer by LCPD. *GTA3* represented the promises of what open-ended gamespaces could achieve, giving players unprecedented exploration into a detailed urban environment. To be able to experience the potential narrative complexities of the Erasmatron in conjunction with such an open-ended world is unimaginable at the moment, though it would doubtlessly offer an even more uniquely memorable and innovative experience than *GTA3* already provides.

The Erasmatron employs a system of color-coded representations to display to the player the alignment other NPCs currently hold towards them. In addition, textual cues inform players as to how their actions affect the outcome of the narrative. As important and informative as these are, it may also be advisable to allow players to hide these cues with the press of a hotkey, to better mend over the seams of the Erasmatron and present a cohesive and transparent gamespace for the player. Additionally, developers that use Crawford's engine, or those with similar goals in mind, may wish to not cut to a narrative sequence to bridge the various substories and their reactions substories, but may rather wish to present the narrative in ways similar to *Half-Life* or *Uru* and their methods of in-game narrative delivery. Much like *Half-Life*, the Erasmatron's strength comes in its scripting language, as actions on behalf of the player-character to NPCs can trigger reaction actions, which can trigger *other* actions, *ad infinitum*, until the situation resolves itself or is resolved by scripted action. Should the engine encounter a narrative scenario or action that it cannot handle or doesn't understand, it simply "poisons" the action and skips over it. "The engine doesn't become befuddled and issue an error message to the player; it... skips over the problem and continues the operation. This makes the storyworld less exciting... but it keeps the story moving" (Crawford, "Interactive" 272). Crawford discusses how *all* actions for the player must be coded into most games to anticipate awkward or out-of-place narrative possibilities, which can result in bugs and potential crashes of the software. A wide array of actions are already implemented into the Erasmatron code, and developer customization opens up possibilities for other action verbs to be added alongside new character and stage attributes. Though no mainstream developers have pursued the licensing of Crawford's technology for use with their

videogames, the Erasmatron's narrative potential looks promising when compared to the simplistic handling of narrative by current game engines.

Crawford's Erasmatron, and ultimately this thesis, is an admitted lesson in planned obsolescence, as he considers it merely a stepping stone to better, more capable storytelling engines in the future. However, in a development climate concerned more with graphics and technological pizzazz, at least one educated and informed developer, Crawford, is raising awareness about the need for a truly interactive storytelling process as his primary focus. After interest in graphics and technology plateaus, developers will have to keep innovating in the one area most of them have neglected up to this point: the process of storytelling itself.

Though none of the games discussed in this essay have necessarily achieved a *dynamic*, interactive storytelling process, they all *have* displayed unique and innovative ways of immersing the player into their narrative process utilizing a variety of effective methods that can ultimately complement what the Erasmatron is trying to achieve. A stylized, abstracted gamespace facilitates developers in opening up new schematic possibilities for interaction, while also allowing the mind to focus on the videogame's plot and story, as well as the game's various characterizations. Stylization, at this point, ultimately allows the mind to better suspend disbelief, rather than having to compare the game experience with realistic representations: certainly this won't be an issue within the near future, as nVidia's recently-announced GeForce 6 video card promises to be one of the last major stepping-stones for true "cinematic gaming."¹⁶ The use of third-person cameras allows for increased player identification, while the use of the first-person

¹⁶And *all* the problems that having to render a believable reality can entail.

camera stresses gameplay situations where immediacy and player control in the environment are more important than character identification. However, the first-person can also create ruptures in the illusion of a cohesive gamespace depending on the method of narrative delivery, so this is an area that developers need to work on as well, with the development of intelligent transitions between third and first-person camera angles.¹⁷ To achieve a truly interactive and immersive storytelling process, developers will need to begin smoothing over the various ruptures imposed by the necessities of current technological limitations, as well as simultaneously paying attention to the creation of open-ended, living worlds. Massively Multiplayer Online Role-Playing Games (MMORPGs) may offer themselves more readily to future advances in these types of technologies, as user subscription fees are able to keep developers afloat over the long term, a common problem with struggling developers—which also allows them to patch and add new game content on a regular basis, including new story content.¹⁸ Though many current MMORPGs are mission-based in their narrative structure, the prospect of computer-controlled NPCs whispering about the happenings of rogue bands of players traveling together in the virtual countryside is enticing. Technologies like Crawford's Erasmatron engine offers much promise to the field of interactive storytelling, which Crawford predicts will ultimately be a niche market carried by certain developers and with a small legion of fans. At the moment, it is impossible to say how this divide between (inter)action and narrative will turn out—but it *can* be stated with certainty that it will be an interesting ride indeed towards this Holy Grail of gaming. It will be a ride

¹⁷*Prince of Persia: The Sands of Time* did a great job handling the disruptive transitions between third and first person cameras with a unique motion blur effect.

¹⁸Additionally, adventure/action hybrid videogames, of the type Bob Mandel predicts in the article cited earlier in this essay, may offer interesting experiences for lone players.

with many hits, misses, blunders, and casualties, as developers get comfortable in a type of storytelling process that has been virtually ignored up to this point, but it will still be an interesting ride, nonetheless.

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BIOGRAPHICAL SKETCH

Michael Sansone was born in Conley, GA, and attended a number of schools before moving to Gainesville, FL, in the seventh grade. His passion for games started at a young age, when he was first introduced to the Atari by his parents. In the years following, he graduated up to more complex forms of game narratives, such as the early Sierra and LucasArts adventure games of the late-1980s and the mid-1990s. Michael attended Eastside High School's International Baccalaureate program in Gainesville for two years, and then completed his high school education at Charlotte High School in Punta Gorda, FL, after relocating.

Upon his graduation, Michael returned to the University of Florida to begin his bachelor's degree in English, which he completed in 2002, specializing in Film and (New) Media Studies and graduating *cum laude*. He returned to the University of Florida for his Master's degree in English, where he has taught classes in Technical Writing and noir as it operates throughout a host of media forms. Michael has worked with and analyzed a number of media throughout his education, including photography, classical and avant-garde film, television, graphic novels, animation, videogames, and children's literature. He still somehow manages to find the time to play the newest in personal computing games, and he launched an internationally-renowned and successful online gaming team, The Jedi Knights Templar, in 2002. He also has developed an extensive knowledge of matters concerning the dangers of globalism, hallmarks of the police state, and secret societies.